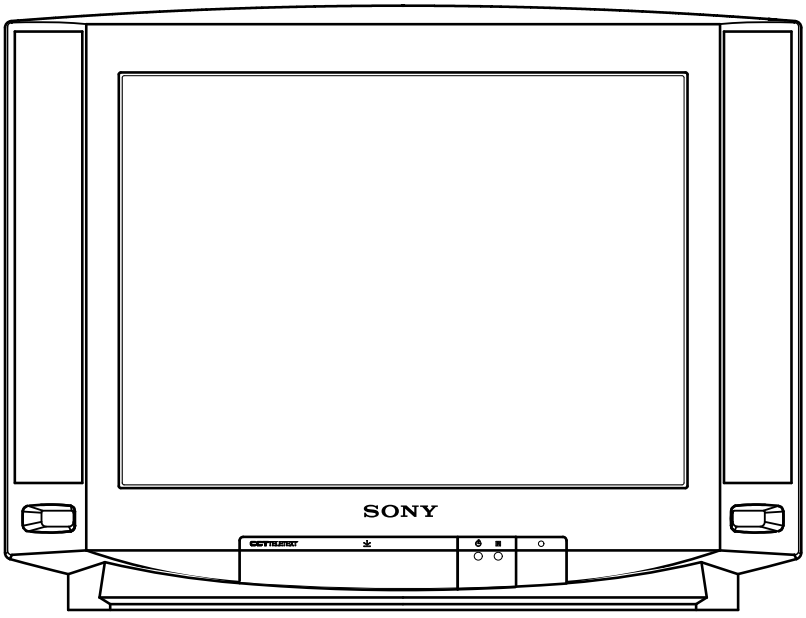
SELF-DIAGNOSTIC FUNCTION

SERVICE MANUAL

FE-1 CHASSIS

MODEL	COMMANDER	DEST	CHASSIS NO.
KV-21M5D	RM-883	AEP	SCC-Q04M-A
KV-21T5D	RM-883	AEP	SCC-Q04N-A
KV-21M5K	RM-883	OIRT	SCC-Q03V-A
KV-21T5K	RM-883	OIRT	SCC-Q03X-A
KV-21T5R	RM-883	OIRT	SCC-Q03W-A



MICROFILM

TRINITRON® COLOR TV

SONY®

ITEM MODEL	Television System	Channel Coverage	Color System
AEP	B/G/H	VHF : E2-E12, A-H2, R01-R12 UHF : E21-E69, B21-B69, R21-R69 CABLE TV : S01-S05, S1-S20 HYPER : S21-S41	PAL, SECAM
OIRT	B/G/H, D/K	VHF : E2-E12, R01-R12 UHF : E21-E69, R21-R60 CABLE TV : S01-S03, S1-S20 HYPER : S21-S41	PAL, SECAM NTS04.43, NTSC3.58 (VIDEO IN)

MODEL	21M5D 21T5D	21M5K 21T5K	21T5R
Power Consumption	60W	60W	60W

[PICTURE TUBE] Super Trinitron
Approx. 55cm (21 inches)
(Approx. 51cm picture measured diagonally)
110 degree deflection

Input/Output Terminals

[REAR]

1/ 21-pin Euro connector (CENELEC standard).
- Inputs for Audio and Video signals.
- Inputs for RGB.
- Outputs of TV Video and Audio signals.

[FRONT]

2 Video input - phono jack

Audio inputs - phono jacks
Headphone jacks : minijack

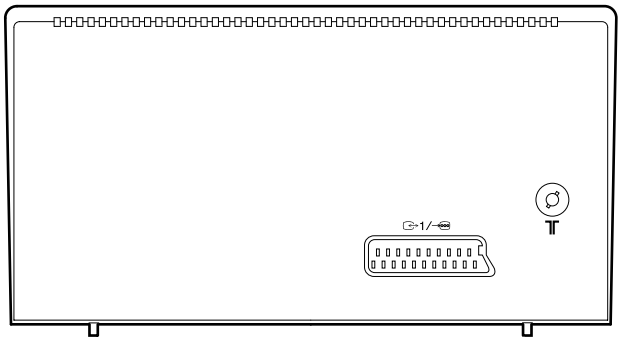
Sound output	2 x 4.5W (Music Power)
Power requirements	220 - 240V
Dimensions	Approx 598x456x467mm
Weight	Approx 21kg
Supplied accessories	RM-883 Remote Commander (1) IEC designated R6 battery (2)
Other features	TELETEXT (For KV-21T5 models)

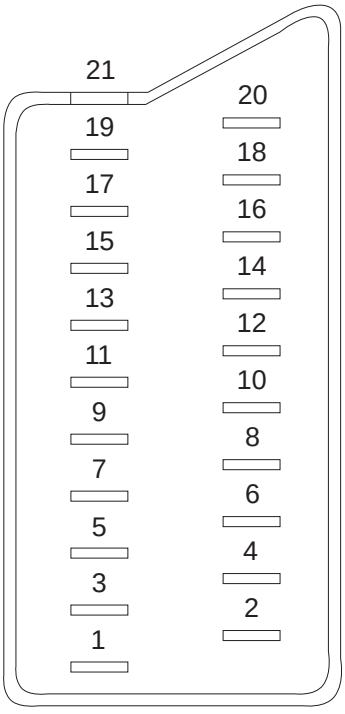
[RM-883]

Remote control system	Infrared control
Power requirements	1.5V dc 2 batteries IEC designation R6 (size AA)
Dimensions	Approx 65x225x21mm (w/h/d)
Weight	Approx 157g (Not including battery)

Design and specifications are subject to change without notice.

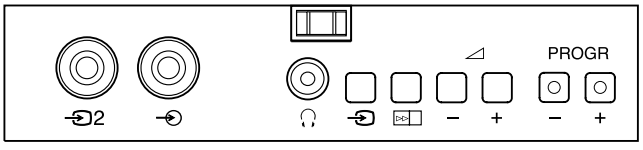
Model Name / Item	KV-21M5D / KV-21T5D	KV-21M5K / KV-21T5K	KV-21T5R
Pal Comb	OFF	OFF	OFF
PIP	OFF	OFF	OFF
Woofer Box	OFF	OFF	OFF
Scart 1	ON	ON	ON
Scart 2	OFF	OFF	OFF
Front in (3)	ON	ON	ON
Scart 4	OFF	OFF	OFF
Projector	OFF	OFF	OFF
AKB in 16:9 mode	ON	ON	ON
Norm B/G	ON	ON	ON
Norm I	OFF	OFF	OFF
Norm D/K	OFF	ON	ON
Norm AUS	OFF	OFF	OFF
Norm L	OFF	ON	OFF
Norm SAT	OFF	OFF	OFF
Norm M	OFF	OFF	OFF
Language Preset	German	OIRT	OIRT





Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
2	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : More than 10kohm*
3	○	○	○	Audio output A (left)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5V rms Output impedence : More than 10kohm*
7	○	●	●	Blue input	0.7 +/- 3dB, 75 ohms positive
8	○	○	○	Function select (AV control)	High state (9.5-12V) : Part mode Low state (0-2V) : TV mode Input impedence : More than 10K ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7 +/- 3dB, 75 ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	–	–	Red input	0.7 +/- 3dB, 75 ohms, positive
	–	○	○	(S signal Chroma input)	0.3 +/- 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1-3V) Low state (0-0.4V) Input impedence : 75 ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
20	○	–	–	Video input	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
	–	○	○	Video input Y (S signal)	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
21	○	○	○	Common ground (plug, shield)	

○ ●



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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP

WARNING !!

AN ISOLATING TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD DUE TO LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE'LANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÈ LORS DE TOUT DÈPANNAGE. LE CHÁSSIS DE CE RÈCEPTEUR EST DIRECTMENT RACCORDÈ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS Á LA SÈCURITÈ !!

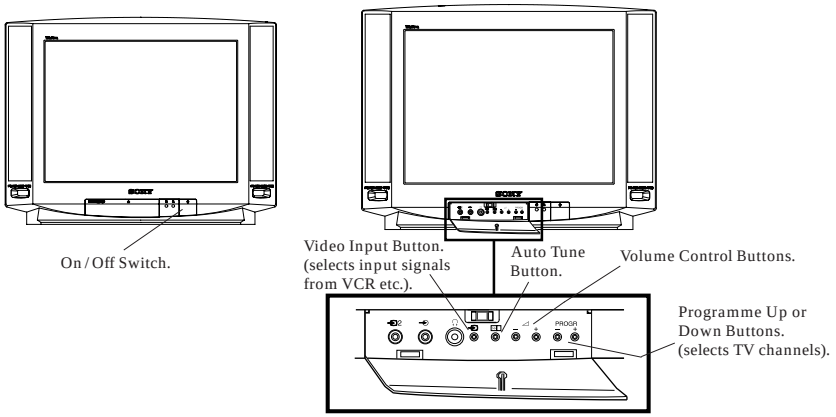
LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÈMAS DE PRINCIPE, LES VUES EXPLOSÈES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÈCURITÈ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPSANTS SONY DONT LE NUMÈRO DE PIÈCE EST INDIQUÈ DANS LE PRÈSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÈS PAR SONY.

SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

Basic TV Features

Overview of TV Buttons



Overview of Remote Control Buttons

To Mute Sound

Press to mute TV sound. Press again to restore the sound.

To Select Channels

Press to select channels.

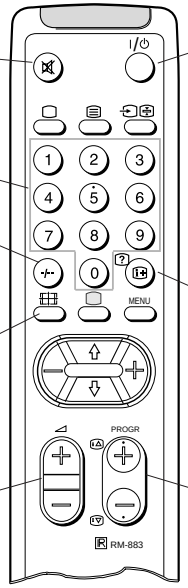
For double-digit programme numbers, e.g. 23, press -/-- first, then the buttons 2 and 3.
If you enter an incorrect first digit, this should be corrected by entering another digit (0 - 9) and then selecting -/-- button again to enter the programme number of your choice

To Change Screen Format

Press to view programmes in 16:9 mode.
Press again to return to 4:3 mode.

To Adjust TV Volume

Press to adjust the volume of the TV.



To Temporarily Switch Off TV

Press to temporarily switch off TV. Press again to switch on TV from standby mode.
To save energy we recommend switching off completely when TV is not in use.
NOTE: After 15 - 30 minutes without a TV signal and without any button being pressed, the TV switches automatically into standby mode.

To Reveal On Screen Information

Press to reveal all on-screen indications. Press again to cancel.

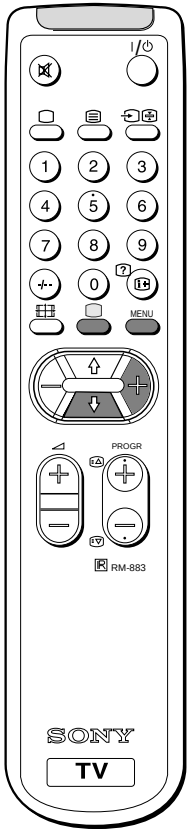
To Select Channels

Press to select channels.

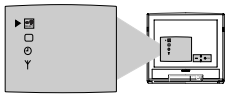
Additional TV Features

Using Select Mode

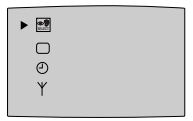
You can select different preset picture modes.



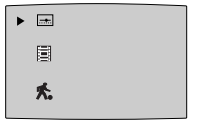
1 Press the MENU button on the remote control to display the menu on the TV screen.



2 With the cursor pointing at the symbol on the TV screen as shown, press the yellow button.



3 Press the blue button to select the desired mode:



- Personal Mode - reverts to settings made in "Adjusting the Picture" section of the manual.
- Movie Mode - for films
- Live Mode - for live broadcast programmes

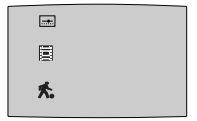
4 Press the MENU button to remove the menu display from the TV screen.

Note: The mode selected in step 3 is now stored.

Changing Modes Quickly

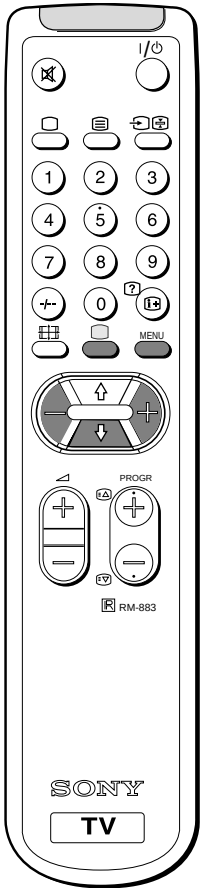
1 Press the ▢ button on the remote control to display the three different modes.

2 Press the ▢ button again to select your desired mode.



Adjusting the Picture

Although the picture is adjusted at the factory, you can modify it to suit your own requirement.



1 Press the ▢ button on the remote control to display the three different modes on the TV screen.

2 Press the ▢ button to highlight the personal mode symbol as shown.

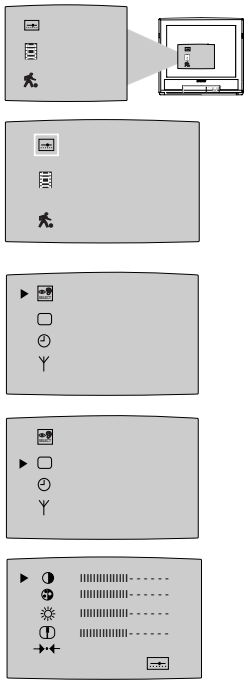
3 Press the MENU button to display the menu on the TV screen.

4 Press the blue button on the control to select the ▢ symbol on the TV screen then press the yellow button.

5 Press the blue button to select the item you wish to change (see below).

6 Press the red or yellow button to alter the selected item.

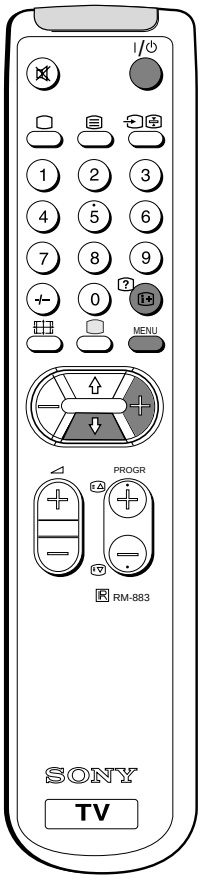
7 Press the MENU button to remove the menu display from the TV screen.



Symbol	Item
◑	• Contrast
	• Colour
☼	• Brightness
◧	• Sharpness
→|←	• Reset - resets to factory preset picture level
	• Represents the mode selected in the "Using Select Mode" section.

Using the Sleep Timer

The TV may be set to switch automatically to the standby mode after a length of time chosen by you. You may set the time in 15 minute steps up to 4 hours.



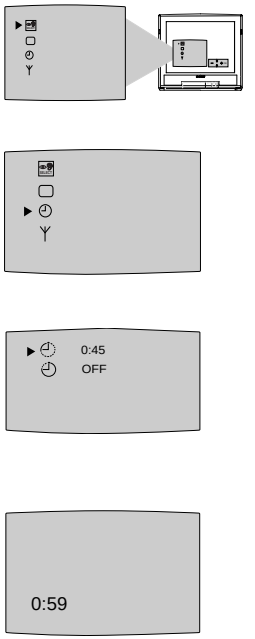
1 Press the MENU button on the remote control to display the menu on the TV screen.

2 Press the blue button on the control to select the ◴ symbol on the TV screen, then press the yellow button.

3 Press the yellow button repeatedly until the required amount of time delay appears on the screen.

4 Once the time delay has been selected, press the MENU button to remove the on-screen display.

One minute before standby, the display shown appears on the screen.

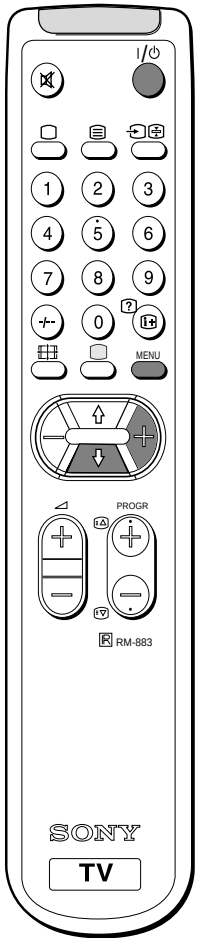


Notes:

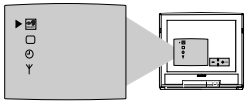
- When watching TV, press the ⓘ button to display time remaining.
- To return to normal operation from standby mode, press the I/⏻ button.

Using the Wake Up Timer

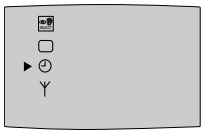
The TV may be set to switch on automatically after a length of time chosen by you. You may set the time in 15 minute steps up to 12 hours.



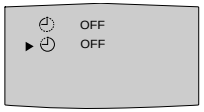
1 Press the MENU button on the remote control to display the menu on the TV screen.



2 Press the blue button on the control to select the ◷ symbol on the TV screen, then press the yellow button.

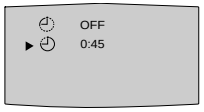


3 Press the blue button on the control to select the ◴ symbol on the TV screen, then press the yellow button.



4 Press the red or yellow button to set the time.

0:00 (OFF) 0:15 0:30 0:45 -----12:00



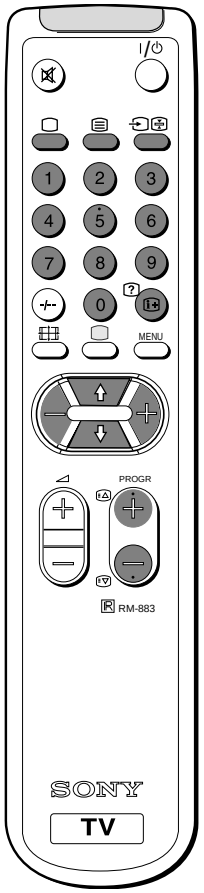
5 Press the standby button I/⏻.
The standby indicator on the TV flashes regularly to indicate that the Wake Up Timer is active.
After the selected length of time, the TV switches on automatically.

Notes:

- If you use the “Wake Up Timer” to switch the TV on and for one hour after switching on, no TV or Remote Control button is pressed, the TV switches itself back into Standby mode and the indicator ⏻ on the TV lights.
- Any temporary power failure will cause a misfunction in the “Wake Up Timer” and you will have to reset the “Wake Up Timer”.

Viewing Teletext (KV-21T5D only)

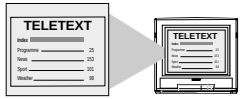
Teletext is an information service transmitted by most TV stations.



Selecting Teletext

1 Press a number button on the remote control to select the channel which carries the teletext service you wish to receive.

2 Press the ☰ button on the remote control to switch on teletext.



3 Input three digits for the page number using the numbered buttons on the control.

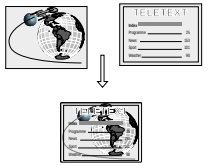
4 Press the ▢ button to switch off teletext.

Note: Teletext errors may occur if the broadcasting signals are weak.

Using Other Teletext Functions

To Superimpose Teletext on to the TV

Press ☰ once in teletext mode or twice in TV mode to superimpose teletext on to the TV screen.
Press ☰ again to cancel teletext mode.



To Move to Next or Preceding Page

Press PROGR + / - on the remote control to select the previous or next page.

To Freeze a Teletext Page

Press ⊕ on the control to freeze the page.
Press ⊕ again to cancel the freeze.

Revealing concealed information (eg: answers to a quiz).

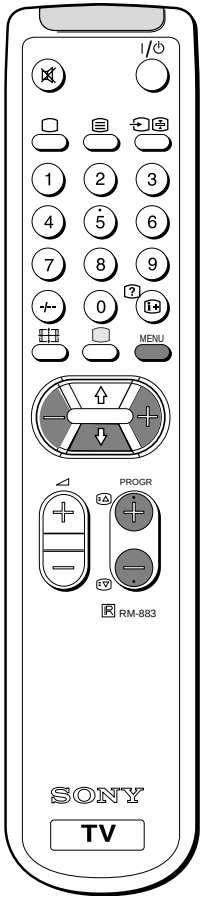
Press ? to reveal information.
Press again to conceal the information.

Using colour buttons to access pages (Fastext)

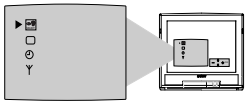
When the colour coded menu appears at the bottom of a page, press the colour button (green, red, yellow or blue) to access the corresponding page.

Exchanging Programme Positions

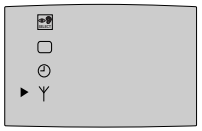
After tuning you may wish to change the order in which the channels appear on the TV. You may wish for example to exchange the channel on programme number 8 with the channel on programme number 4.



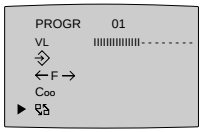
1 Press the MENU button on the remote control.



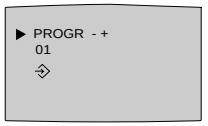
2 Press the blue button on the control to select ᛉ on the TV screen, then press the yellow button.



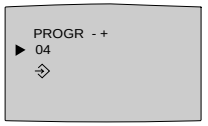
3 Press the blue button to select ⇆ then press the yellow button.



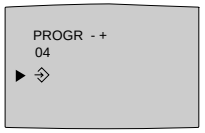
4 With the cursor pointing at PROGR on the TV screen as shown, press PROGR + or - button until the channel you wish to rearrange appears on screen, then press the blue button once.



5 Press the red or yellow button to select the new programme number (e.g. PROGR 04) for your selected channel.



6 Press the blue button to select ⇨ then press the yellow button to exchange the channels.

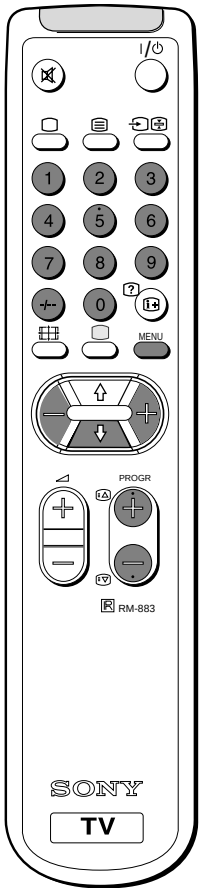


7 Repeat steps 4 to 6 if you wish to change the order of the other channels on your TV, then press MENU to return to normal TV screen.

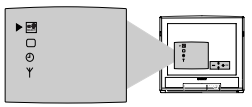
8 Press the PROGR+/- button to view your selected channels on their new programme numbers.

Manually Tuning the TV

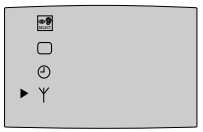
You have already tuned the TV to receive all available channels using the `Automatically Tuning the TV' procedure at the start of this manual. You can however carry out this operation manually using the following instructions.



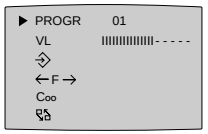
1 Press the MENU button on the remote control to display the menu on the TV screen.



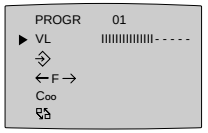
2 Press the blue button to select the ᛉ symbol on the TV screen then press the yellow button.



3 With the cursor pointing at PROGR on the TV screen as shown, press PROGR + or - button on the remote control to allocate a programme number to the channel (eg PROGR 01). For double digit numbers e.g. 55, press the -/-- button on the remote control then the corresponding numbered buttons.

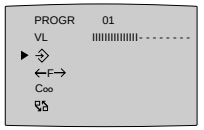


4 Press the blue button to select the tuning bar scale then press the yellow or red button once to start the channel search. (Yellow to search up the scale or red to search down). When a channel is found it appears on the TV screen.



5 If you do not wish to store this channel on the programme number you selected, press the yellow or red button to continue searching for the desired channel.

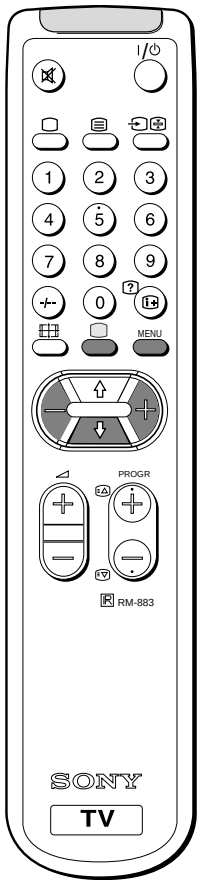
6 If this is the channel you wish to store, press the blue button to select the ⇨ symbol on the screen then press the yellow button to store.



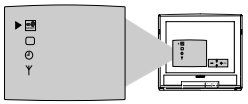
7 Repeat steps 3 to 6 if you wish to store more channels then press the MENU button to remove the menu from the TV screen.

Fine-Tuning Channels

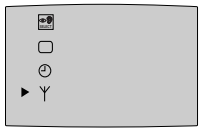
If a channel is slightly off tune, you can use this fine tune procedure to obtain a better picture reception.



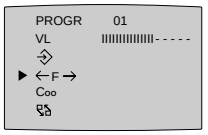
1 With the channel you wish to fine-tune on the screen, press the MENU button on the remote control. The menu display appears on the TV screen.



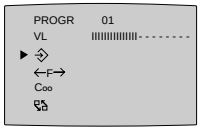
2 Press the blue button on the remote control to select the Y symbol on the TV screen then press the yellow button.



3 Press the blue button to select the ←F→ symbol on the TV screen then press the red or yellow button to adjust the tuning.



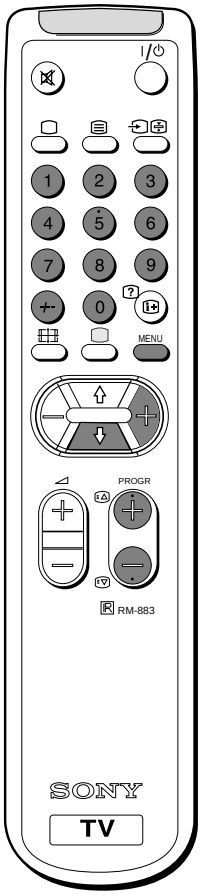
4 Press the blue button to select the ⇨ symbol on the TV screen then press the yellow button to store.



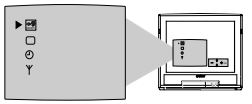
5 Press the MENU button to remove the menu from the TV screen.

Skipping Programme Positions

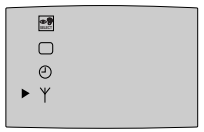
You can programme this TV to skip any unwanted programme numbers when they are selected with the PROGR +/- buttons.



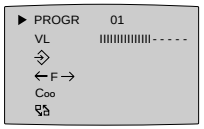
1 Press the MENU button on the remote control to display the menu on the TV screen.



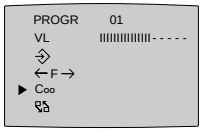
2 Press the blue button on the control to select the Y symbol on the TV screen then press the yellow button.



3 With the cursor pointing at PROGR on the TV screen as shown, press PROGR + or - button on the remote control to select the programme number you want to skip.



4 Press the blue button to select Coo on the TV menu screen then press the yellow button on the remote control.



5 Press the blue button to select the ⇨ symbol on the TV screen then press the yellow button to store.

6 Repeat steps 3 to 5 to skip other unused programme positions.

7 Press the MENU button to remove the menu from the TV screen.

Note: If you wish, you can still select any skipped programme number by pressing the corresponding numbered buttons on the remote control.

Using Optional Equipment

You can connect optional audio or video equipment to your TV, such as a VCR, a camcorder or video games as shown.

Select and View the Input Signal

1 Connect your equipment to the designated TV socket.

2 Press the ⊖ button repeatedly on your remote control until the correct input symbol appears on the TV screen.

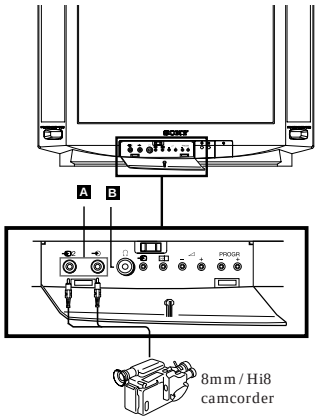
Symbol	Input signals
⊖1	• Audio / video input signal through the Euro AV connector **C**
→⋯	• RGB input signal through the Euro AV connector **C**
⊖2	• Audio / video input signal through the phono sockets **A**

3 Switch on the connected equipment.

4 To return to normal TV picture, press the ▭ button on the remote control.

Note: To avoid picture distortion, do not connect equipment to the **A** and **C** connectors at the same time.

Front of TV



Additional Information

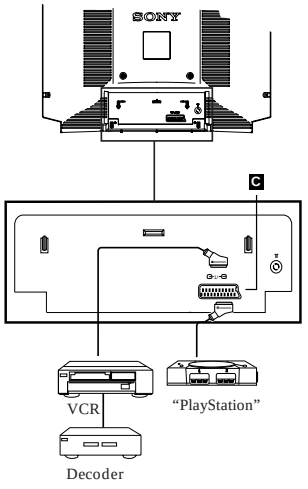
Connecting a VCR

We recommend you tune in the VCR signal to TV programme number `0' using the `Manually Tuning in the TV' section of this instruction manual.

Connecting Headphones

Plug in your headphones to the socket **B** on the front of the TV set.

Rear of TV



Troubleshooting

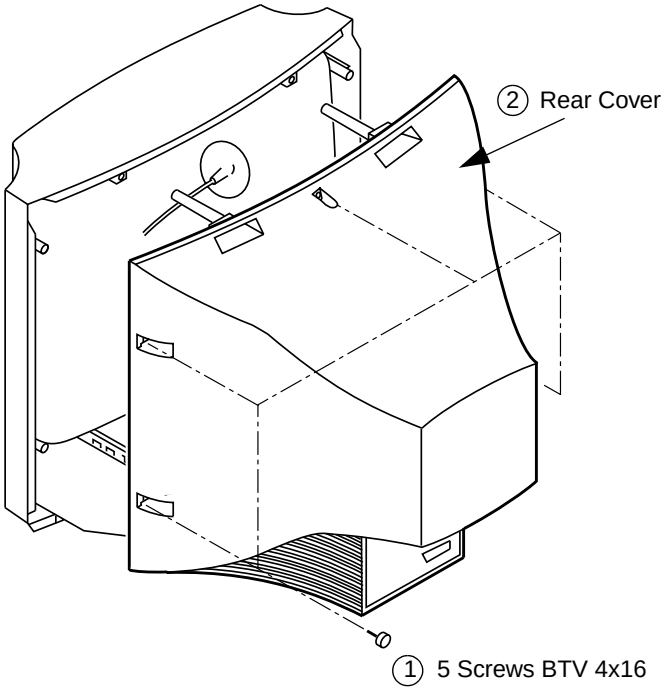
Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press the ⏻ button on the front of TV. • If the ⏻ indicator is on press I/⏻ button or a programme number button on the remote control. • Check the aerial connection. • Check that the selected video source is on. • Turn the TV off for 3 or 4 seconds and then turn it on again using the ⏻ button on the front of the TV.
Poor or no picture (screen is dark), but good sound	• Using the MENU system, select the Picture Adjustment display. Adjust the brightness, picture and colour balance levels. • From the Picture Adjustment display select →•← to return to the factory settings.
Poor picture quality when watching a RGB video source.	• Press the ⊖ button repeatedly on the remote control until the RGB symbol →⋯ is displayed on the screen.
Good picture, no sound	• Press the ◿ +/– button on the remote control. • If 🔇 is displayed on the screen, press the 🔇 button on the remote control.
No colour on colour programmes	• Using the MENU system, select the Picture Adjustment display. Adjust the colour balance. • From the Picture Adjustment display select →•← to return to the factory settings.
Distorted picture when changing programmes or selecting teletext	• Turn off any equipment connected to the 21 pin Euro connector on the rear of the TV.
Remote control does not function	• Replace the batteries
The standby indicator ⏻ on the TV flashes even though the "Wake Up Timer"is not in use.	• Contact your nearest Sony service centre.

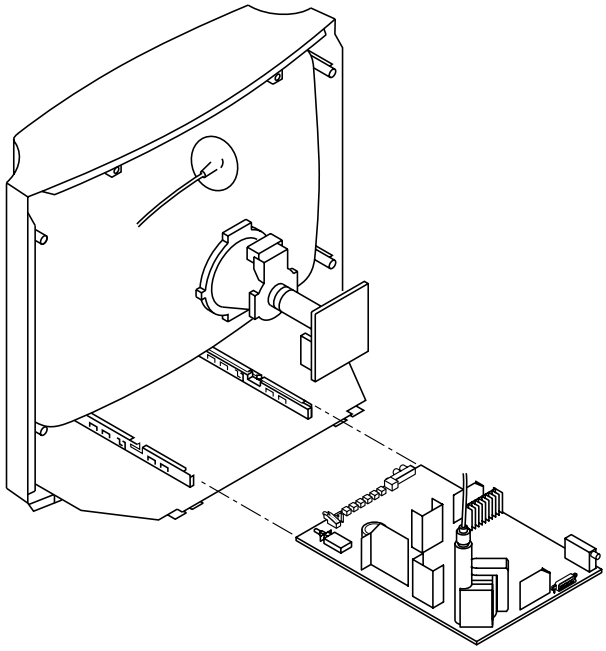
- **If you continue to have these problems, have your TV serviced by qualified personnel.**
- **NEVER open the casing yourself.**

SECTION 2
DISASSEMBLY

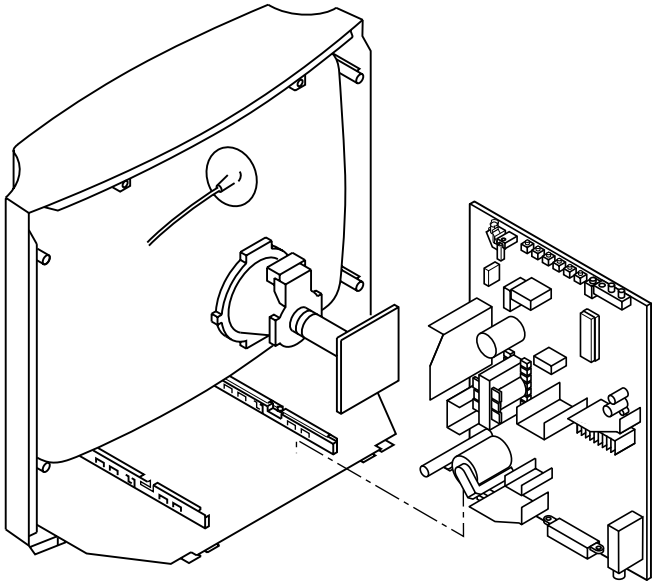
2-1. REAR COVER REMOVAL



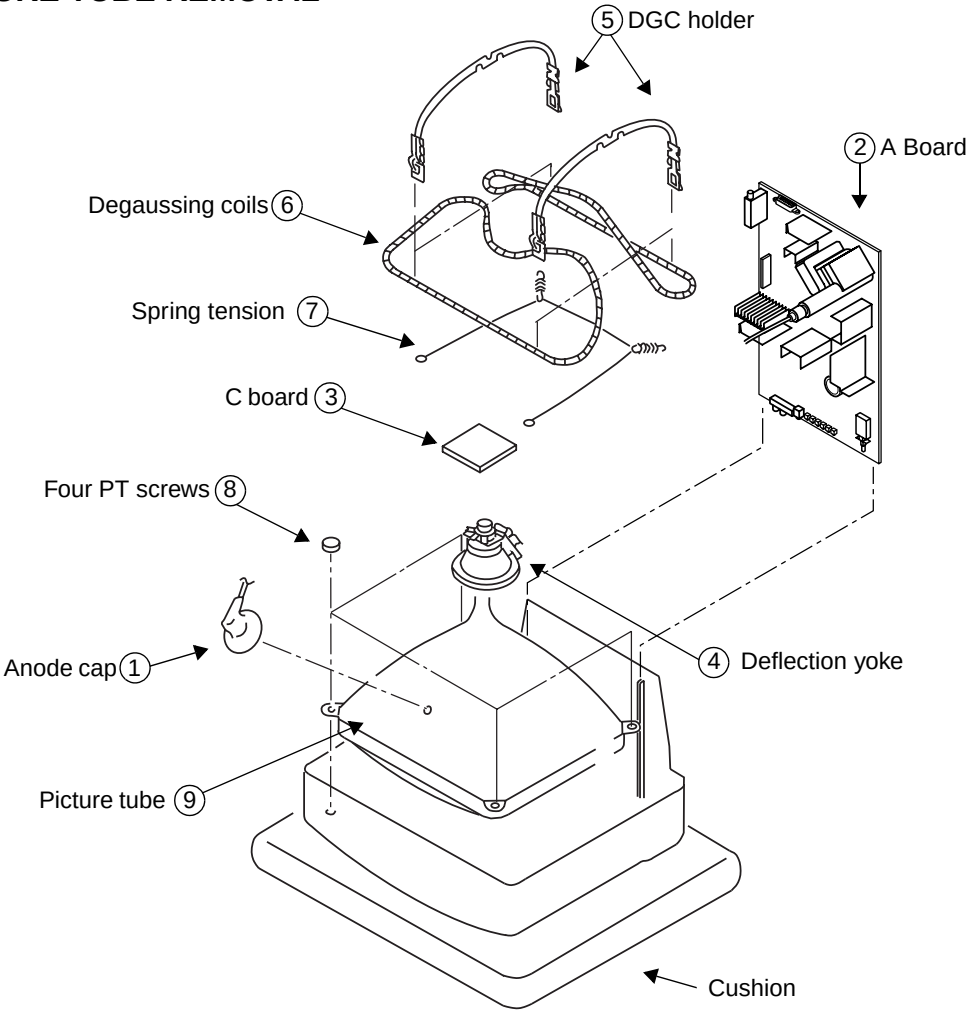
2-2. CHASSIS ASSY REMOVAL



2-3. SERVICE POSITION



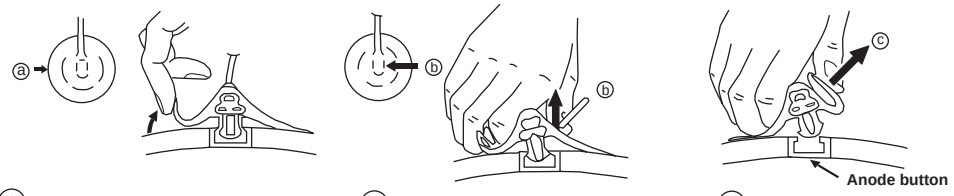
2-4. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

Note : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

*** REMOVING PROCEDURES.**



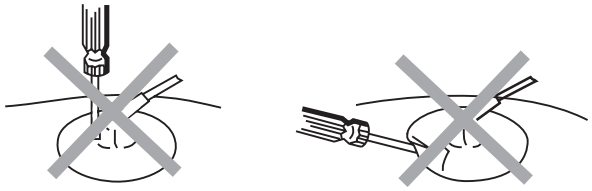
① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

• HOW TO HANDLE THE ANODE-CAP

① To prevent damaging the surface of the anode-cap do not use sharp materials.
② Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
③ A metal fitting called a shatter hook terminal is fitted inside the rubber cap. Do not turn the rubber foot over excessively this may cause damage if the shatter hook sticks out.



SECTION 3
SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings :

Contrast ..... 80% [or remote control normal]

Brightness 50%

Carry out the following adjustments in this order :

3-1. Beam Landing
3-2. Convergence
3-3. White balance
3-4. Focus

Note : Test equipment required
1. Color bar/pattern generator.
2. Degausser.
3. Oscilloscope.
4. Digital multimeter.
5. DC Power supply.

Preparation:

1. In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
2. Switch on the TV set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input an all-white signal from the pattern generator. Set the Contrast and Brightness to normal.
2. Set the pattern generator raster signal to all Red.
3. Move the deflection yolk forward and adjust with the purity control so that the Red is at the centre and the Blue and Green take up equally sized areas on each side of the screen. [See Fig.3-1 - 3-3].
4. Move the deflection yolk forward and adjust so that the entire screen becomes Red. [See Fig.3-1].
5. Switch the raster signal to Blue, then to Green and verify the purity condition.
6. When the position of the deflection yolk has been determined, fasten the deflection yolk with the screws.
7. If the beam does not land correctly in all the corners, use magnets to correct it. [See Fig.3-4].

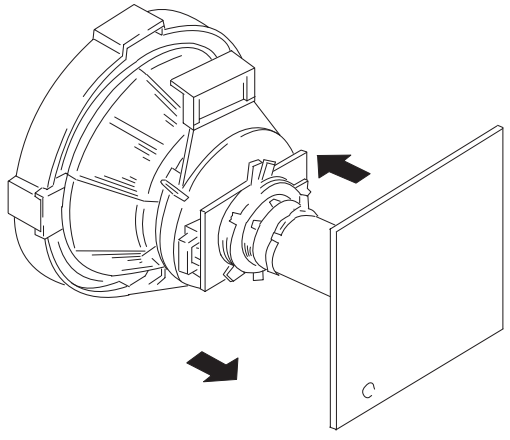
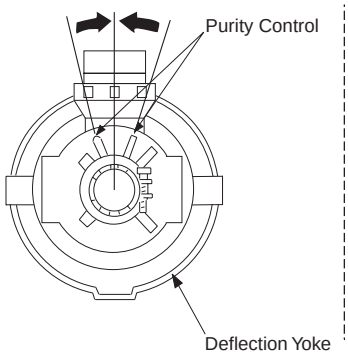


Fig. 3-1

Fig. 3-2



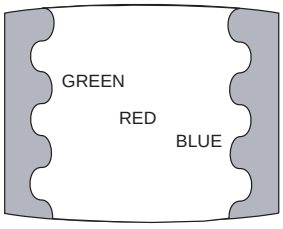


Fig. 3-3

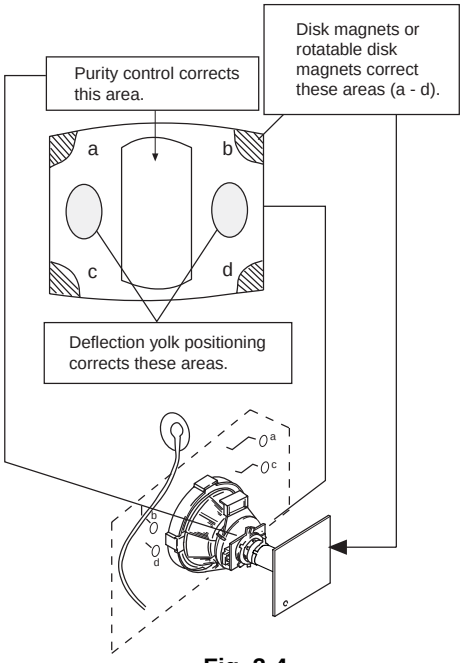


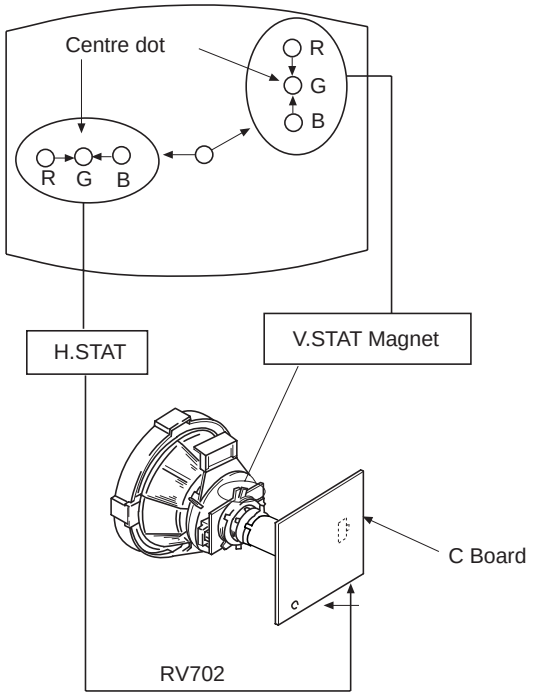
Fig. 3-4

3-2. CONVERGENCE

Preparation:

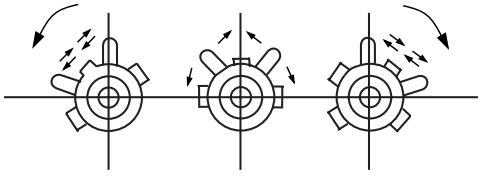
- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the Brightness setting.
- Input a dot pattern from the pattern generator.

(1) Horizontal and vertical static convergence

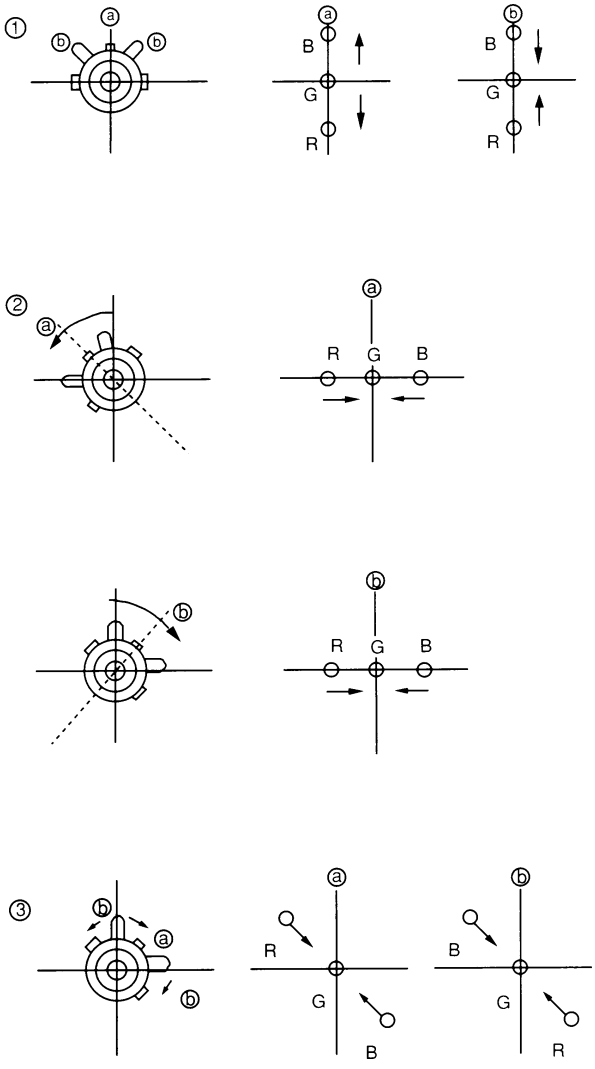


1. [Moving horizontally], adjust the H.STAT control so that the Red, Green and Blue points are on top of each other at the centre of the screen.
2. [Moving vertically], adjust the V.STAT magnet so that the Red, Green and Blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor is unable to bring the Red, Green and Blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner indicated below. [In this case, the H.STAT variable resistor and the V.STAT magnet influence each other].

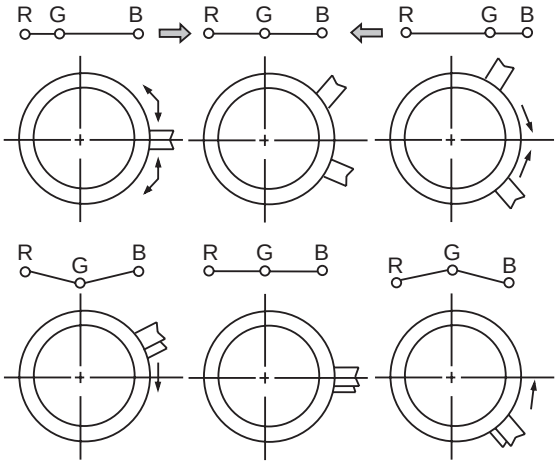
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

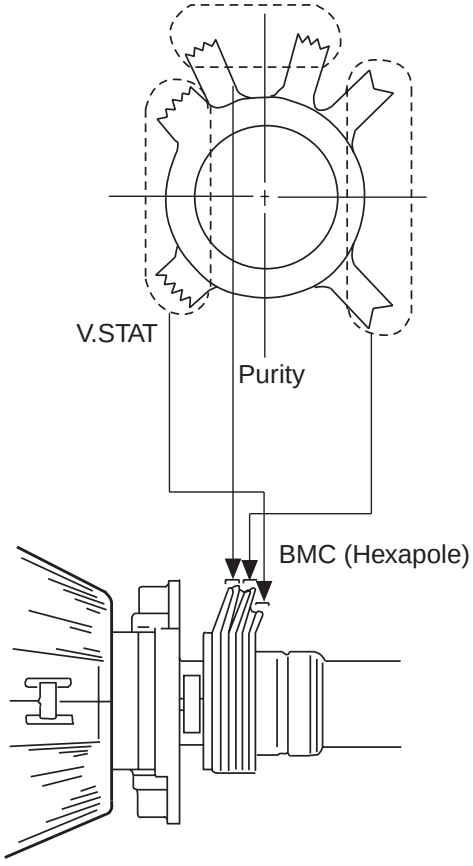


4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the Red, Green and Blue points move as indicated below.



(2) Operation of the BMC (Hexapole) magnet.





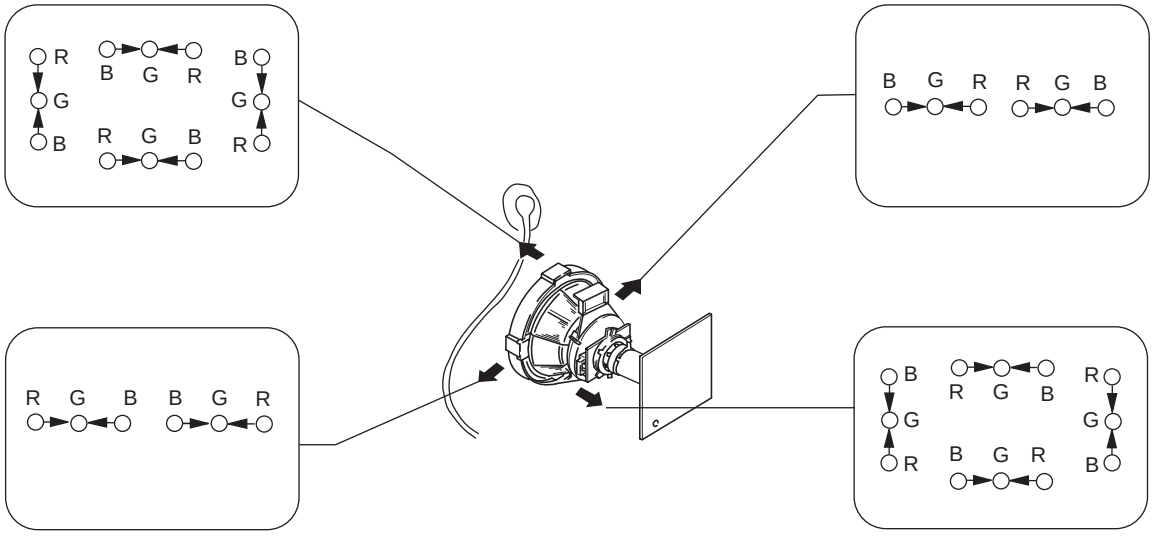
- The respective dot position resulting from moving each magnet interact, so be sure to perform adjustment whilst tracking.
  Use the H.STAT VR to adjust the Red, Green and Blue dots so that they coincide at the centre of the screen
  [by moving the dots in the horizontal direction].

(3) Dynamic convergence adjustment.

Preparation:

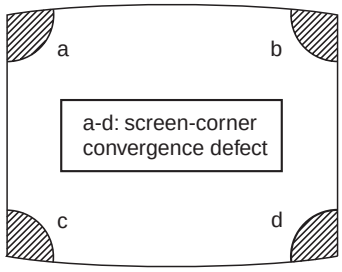
- Before starting this adjustment, adjust the horizontal and vertical static convergence.

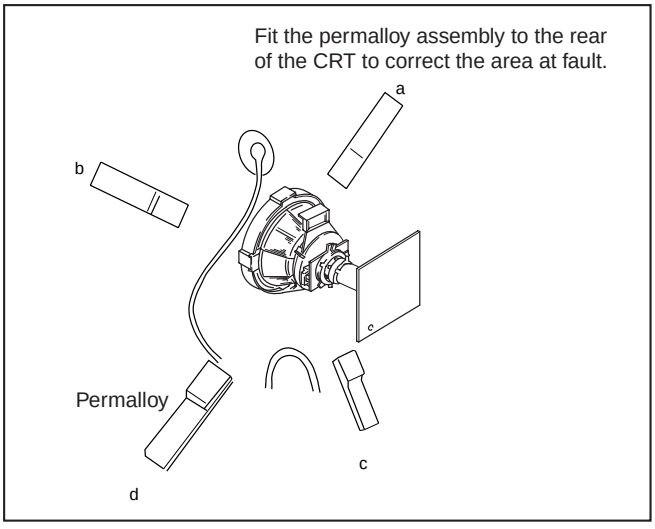
1. Slightly loosen the deflection yolk screws.
2. Remove the deflection yolk spacer.
3. Move the deflection yolk as indicated in the figure below and optimize the convergence.
4. Tighten the deflection yolk screws.
5. Re-install the deflection yolk spacer.

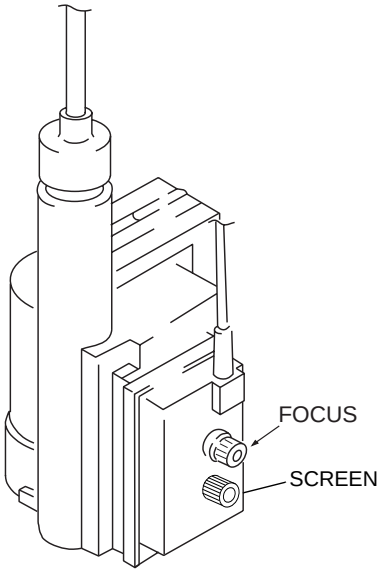


(4) Screen corner convergence.

- If you are unable to adjust the corner convergence properly, this can be corrected by the use of permalloy assemblies.







3-3. Screen [G2], White balance

G2 Setting

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 170Vdc from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust the G2 control [RV SCREEN] located on the FBT to the point just before the fly-back return lines disappear.

White balance adjustment

1. Input a 'PAL' all-white signal from the pattern generator.
2. Enter into the Service Mode.
3. Enter into the 'Picture' service menu.
4. Select the 'Green drive' and adjust so that the White Balance becomes optimum.
5. Select the 'Blue drive' and adjust so that the White Balance becomes optimum.
6. Set the Picture to MIN.
7. Set the 'R-cut-off' to 07.
8. Adjust the 'G-cut-off', and the 'B-cut-off' so that the White Balance becomes optimum.
10. Press the ▭ button to return to TV operation.

PICTURE	
R - Drive	Adj
G - Drive	Adj
B - Drive	Adj
R - cut - off	Adj
G - cut - off	Adj
B - cut - off	Adj
ID - start	02
ID - stop	01
ID - level	01
Bellfo	Adj
Sub Colour	Adj
Sub Brightness	Adj

3-4. FOCUS

1. Input a Phillips colour pattern
2. Set the picture settings to normal.
3. Adjust the focus control located on the Flyback transformer to bring the centre of the screen into focus.

Note :Bring only the centre area of the screen into focus, switch to an all-white pattern and confirm that the magenta ring is hardly noticed. To obtain optimum focus balance the focus setting between optimum screen centre focus and a reduced magenta ring level.

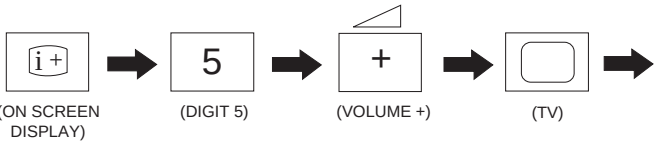
SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustments to this model can be performed using the supplied Remote Commander RM-883.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch and enter into the stand-by mode.
2. Press the following sequence of buttons on the Remote Commander.



(ON SCREEN DISPLAY) (DIGIT 5) (VOLUME +) (TV)

- 'TT--' will appear in the upper right corner of the screen.
  Other status information will also be displayed.

3. Press 'MENU' on the remote commander to obtain the following menu on the screen.

TEST MENU

> Picture
  Geometry
  Sound
  TV Status
  AGC Adjust
  Technical

4. Move to the corresponding adjustment item using the 'Green' [up] or 'Blue' [down] buttons on the Remote Commander.
5. Press the 'Yellow' button to enter into the required menu item.
6. Press the 'Menu' button on the Remote Commander to quit the Service Mode when all adjustments have been completed.

Note : The data shown in the 'TV STATUS' table is dependant on destination and country.

PICTURE

R - Drive	Adj
G - Drive	Adj
B - Drive	Adj
R - cut - off	Adj
G - cut - off	Adj
B - cut - off	Adj
ID - start	02
ID - stop	01
ID - level	01
Bell-f0	Adj
Sub Colour	Adj
Sub Brightness	Adj

GEOMETRY

V centre	Adj
V size	Adj
V Lin	Adj
S Corr	Adj
H Cent	Adj
H Size	Adj
Pin Amp	Adj
Corner Pin	Adj
Pin Phase	Adj
V Bow	Adj
V Angle	Adj
Upper V Lin	Adj
Lower V Lin	Adj
Left HBLK	07
Right HBLK	07
CD Mode (AV)	01

SOUND

Nicam Error Lower	20
Nicam Error Upper	80
Nicam Error Rate	xx [Status only]
AGC Gain Level	xx [Status only]

TV STATUS

Destination	A/L/E/U/D/B/K/R
Text Language	East/West

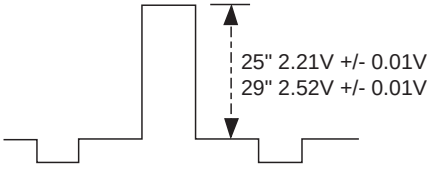
TECHNICAL	
GD - Secam	30
BD - Secam	31
RC - Secam	11
GC - Secam	19
BC - Secam	10
GD - Sports	30
BD - Sports	36
RC - Sports	14
GC - Sports	15
BC - Sports	17
Y - Delay (AV)	07

SUB BRIGHTNESS ADJUSTMENT

1. Input a Phillips colour pattern.
2. Press 'TEST' 'TEST' 13 on the Remote Commander.
3. Adjust the 'Sub-Brightness' data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

SUB CONTRAST ADJUSTMENT

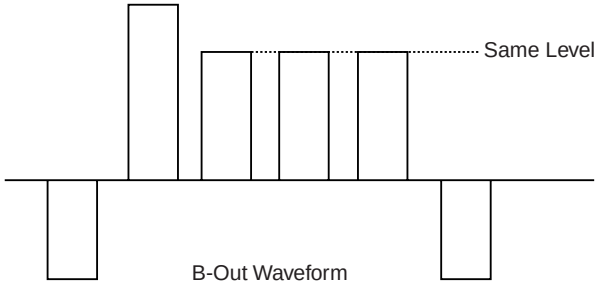
1. Input a video signal that contains a small 100% white area on a black background
2. Set the picture control to maximum. ['TT01']
3. Connect an oscilloscope to Pin 1 of CN504 [A Board].
4. Enter into the 'Picture' service menu.
5. Adjust the 'R - Drive' data to obtain the following waveform.



R - out Waveform

SUB COLOUR ADJUSTMENT

1. Receive a PAL colour bar signal.
2. Connect an oscilloscope to Pin 3 of CN504 [A Board].
3. Enter into the 'Picture' service menu.
4. Adjust the 'Sub Colour' data so that the Cyan, Magenta and Blue colour bars are of equal levels as indicated below.



B-Out Waveform

Note: Ensure that no signal is applied to the Antenna socket while carrying out the following IF adjustments.

SYSTEM B/G, D/K, I & L I.F ADJUSTMENT

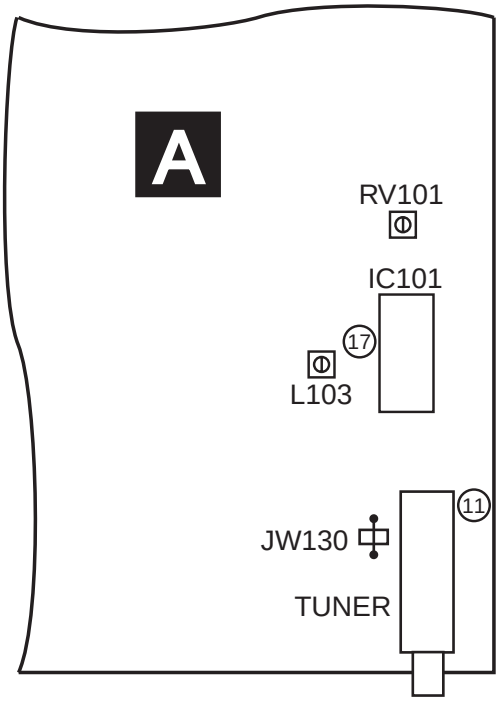
1. Input a 38.9Mhz carrier signal at 100dBuV to Pin 11 [IF output] of the tuner [TU101].
2. Measure the voltage at Pin 17 of [IC101].
3. Adjust L103 [A Board] to obtain a voltage of 2.5V +/- 0.3V.

SYSTEM L BAND 1 I.F ADJUSTMENT

1. Input a 34.0MHz carrier signal at 100dBuV to Pin 11 [IF output] of the tuner [TU101].
2. Select 'system L' + C00 [channel 00].
3. Measure the voltage at Pin 17 [IC101].
4. Adjust RV101 [A Board] to obtain a voltage of 2.5V +/- 0.3V.

TUNER AGC ADJUSTMENT

1. Receive a signal of 65dBuV / 75 ohm terminated, via the tuner antenna socket.
2. Connect a voltmeter to JW130 [A Board].
3. Enter into the 'Test Menu'.
4. Select the 'AGC Adjust' menu item.
5. Adjust the data using the Yellow and Green buttons on the Remote Commander to obtain a voltage of 3.0V +/- 0.2V.

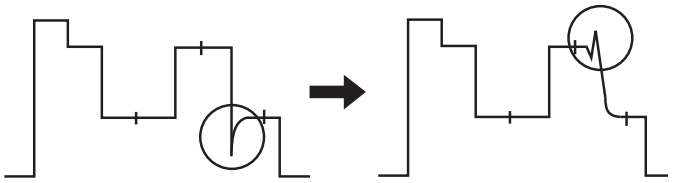


A Board component side

BELL FILTER ADJUSTMENT (Secam models only).

Note : Ensure that the TV set has been powered up for at least 1 minute to allow for drift before carrying out the following adjustment.

1. Input a video SECAM Colour Bar signal via AV1.
2. Connect an oscilloscope to pin 1 of CN504 [R-OUT] on the A board.
3. Enter into the 'Picture' menu and select 'Bell-f0'.
4. Decrease the register of 'Bell-f0' until the following waveform change between RED and BLUE is obtained.



Before adjustment After adjustment

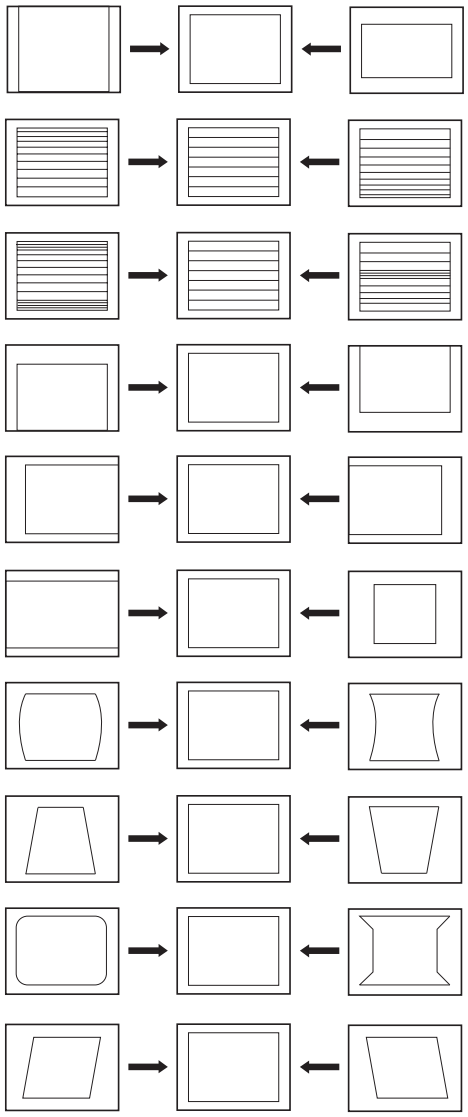
5. When the correct waveform has been obtained add an additional 7 steps to the register.

DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the 'Geometry' service menu.
2. Select and adjust each item in order to obtain the optimum image.

GEOMETRY

V centre	Adj
V size	Adj
V Lin	Adj
S Corr	Adj
H Cent	Adj
H Size	Adj
Pin Amp	Adj
Corner Pin	Adj
Pin Phase	Adj
V Bow	Adj
V Angle	Adj
Upper V Lin	Adj
Lower V Lin	Adj
Left HBLK	07
Right HBLK	07
CD Mode (AV)	01



4-2. TEST MODE 2:

Is available by pressing ‘TEST’ button twice, OSD ‘TT’ appears. The functions described below are available by pressing the two numbers. To release the Test mode 2, press 0 twice, or switch the TV into stand-by mode, or press the 🖵 TV button on the remote commander.

00	Cancel Test mode
01	Picture maximum
02	Picture minimum
03	Volume 35%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Ageing mode On/Off
08	Set shipping conditions
09	Display TV Status
10	No function
11	Sub Picture Adjustment
12	Sub Colour Adjustment
13	Sub Brightness Adjustment
14	Text H position Adjustment
15	Rotation test
16	Picture level 50%
17	Audio mute ON
18	Disable Blanking
19	No function
20	No function
21	Destination A
22	Destination L
23	Destination E
24	Destination U
25	Destination D
26	Destination B
27	Destination K
28	Destination R
29	No function
30	No function
31	Auto shutoff Disable/Enable
32	RGB priority Disable/Enable
33	Rotation On/OFF
34	Text language East/West
35	Wide CRT/4:3 CRT
36	VM ON/OFF test
37	No function
38	No function
39	No function
40	No function
41	Re-initialize the NVM [Only when Prog=59]

42	Re-initialise geometry settings [Only when Prog=59]
43	No function
44	No function
45	No function
46	No function
47	No function
48	Set NVM as NON Virgin [Only when Prog=59]
49	Set NVM as Virgin [Only when Prog=59]
50	No function
51	No function
52	No function
53	No function
54	No function
55	No function
56	No function
57	No function
58	No function
59	No function
60	No function
61	Auto AGC Adjust
62	Alternative Dest B Autotuning
63	Enable/Disable Y/C input
64	Signal Quality Check for Auto Tune
65	Signal Quality NOT Checked for Auto Tune
66	No function
67	Manual AGC Adjust
68 -100	No function

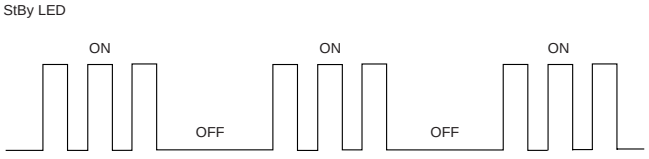
4-3. FE-1 SELF DIAGNOSTIC SOFTWARE

The identification of errors within the FE-1 chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See Table 1., non fatal errors are reported using this method.
Each time the software detects an error it is stored within the NVM. See Table 2.

Table 1

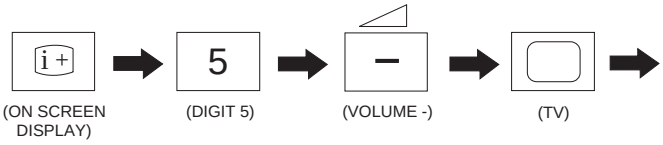
ERROR	LED ERROR COUNT
No error	00
Not allowed (may be confused with Sircs response flash!)	01
Protection circuit trip < ANY TIME >	02
Reserved	03
No vertical sync	04
AKB	05
IIC bus clock and/or data lines low at Power ON	06
NVM no IIC bus acknowledge at Power ON	07
Jungle controller no IIC acknowledge at Power ON	08
Tuner no acknowledge at Power ON	09
Sound processor no acknowledge at Power ON	10

Flash Timing Example : e.g. error number 3



How to enter into Table 2

1. Turn on the main power switch of the TV set and enter into the 'Standby Mode'.
2. Press the following sequence of buttons on the Remote Commander.



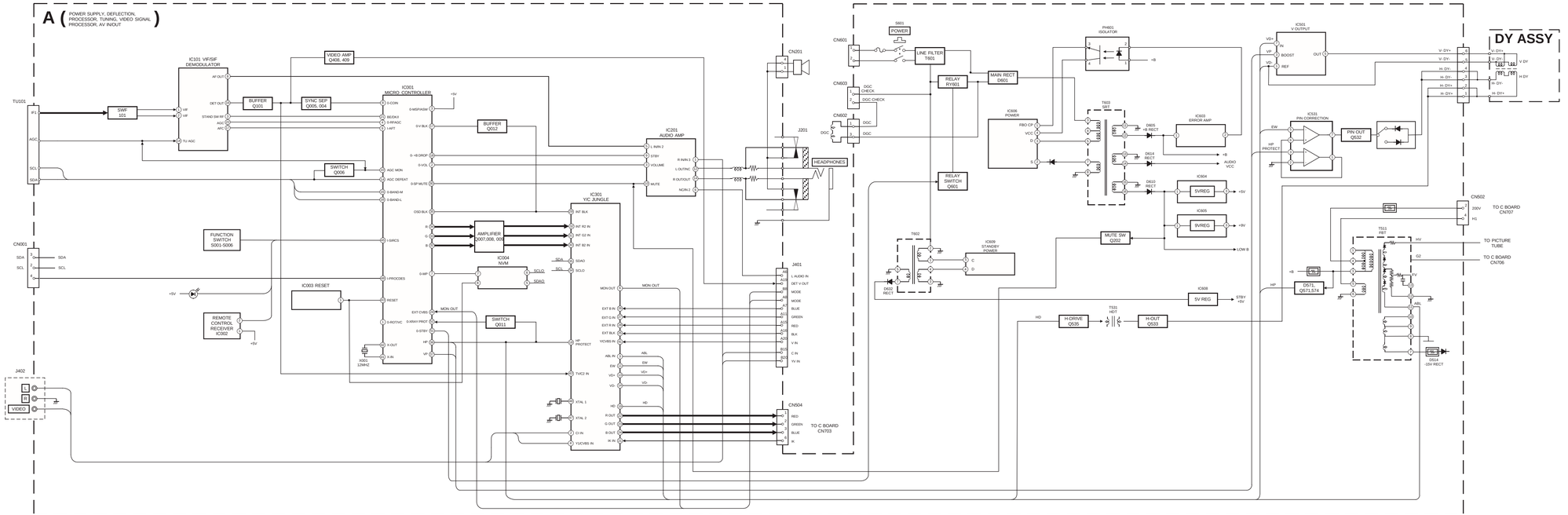
3. The following table will be displayed indicating the error count.

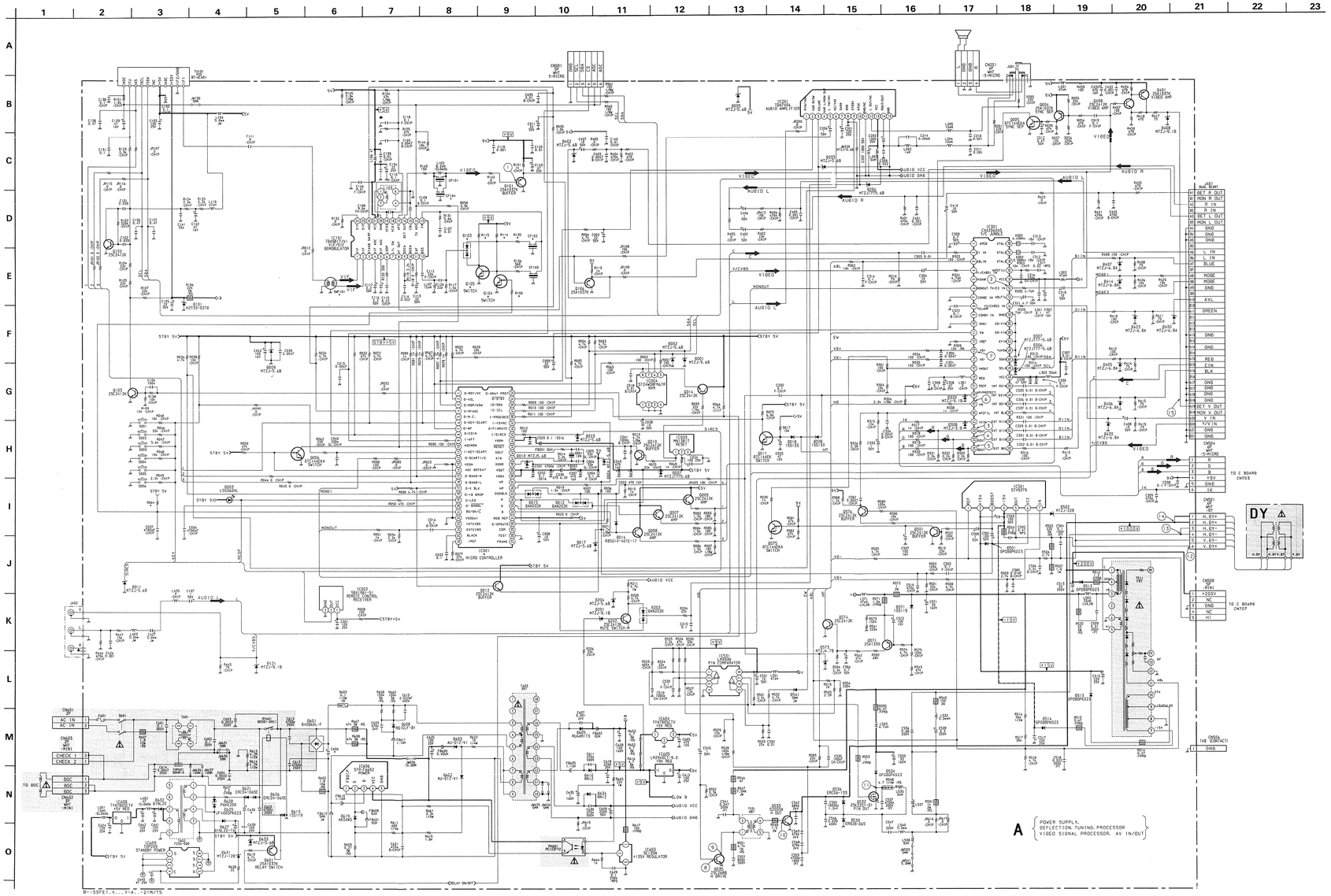
Table 2

Error	Times
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-

Note: To clear the error count data press '80' on the Remote commander.

5-1 BLOCK DIAGRAMS





WAVEFORMS A BOARD

① PAL 1.0 Vp-p (H)	① SECAM 1.3 Vp-p (H)	② PAL 1.0 Vp-p (H)	② SECAM 1.3 Vp-p (H)	③ 2.6 Vp-p (H)
④ 2.6 Vp-p (H)	⑤ 0.5 Vp-p (H)	⑥ 5.0 Vp-p (H)	⑦ 1.4 Vp-p (H)	⑧ 2.0 Vp-p (H)
⑨ 146 Vp-p (V)	⑩ 12 Vp-p (H)	⑪ 142 Vp-p (V)	⑫ 56 Vp-p (V)	⑬ 290 Vp-p (H)
⑭ 1.1KVp-p (H)	⑮ PAL 2.4 Vp-p (H)	⑮ SECAM 3.0 Vp-p (H)		

A BOARD IC VOLTAGE TABLE

IC Voltage Table

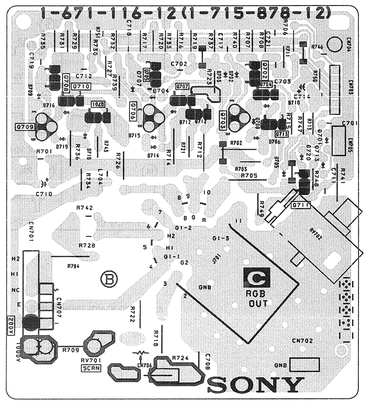
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC001	4	0.8	IC101	5	2.8	IC301	20	3.8
	6	3.2		6	2.7		21	1.6
	7 - 8	4.8		7	3.9		22 - 24	1.5
	9	0.3		8	2.2		26 - 28	4.5
	10	2.0		12	2.0		30	4.5
	11	1.5		15	1.5		31 - 32	4.4
	12	4.7		17	0.3		33	8.1
	19	3.6		18 - 19	2.6		34 - 35	3.3
	20	4.3		21	4.7		41	5.0
	21	4.8		22	0.9		42	8.6
	24	2.5		23 - 24	3.2		43	5.0
	25	2.1	IC201	1	15.3		44	8.8
	26	2.4		5	15.3		45	5.2
	30	4.8		7	15.3		48	1.5
	31	5.0		10	4.5	IC501	1	1.4
	36	0.2		12	15.3		2	14.0
	37	0.1		13	31.2		3	-13.0
	38 - 39	5.0		14	15.3		4	-14.0
	41 - 42	2.2	IC301	1	3.3		5	0.2
	44	4.8		2	5.0		6	14.5
	45	2.8		3	4.3		7	1.4
	47	0.1		4	5.0		1	1.6
	48	2.4		6	4.4		2	1.7
	49	3.3		8	4.5		3	1.9
	50	3.1		11	3.9	IC531	5	2.8
	51	0.1		12	2.4		6	2.0
IC004	5 - 6	4.8		13	3.5		7	7.3
	7	3.3		14	3.4		8	8.8
	8	3.2		15	5.6	IC606	1 - 2	-60.0
IC101	1 - 2	3.2		16	7.6	IC609	4	-51.3
	3	4.8		18	1.3		4	-58.0
	4	3.0		19	2.4			

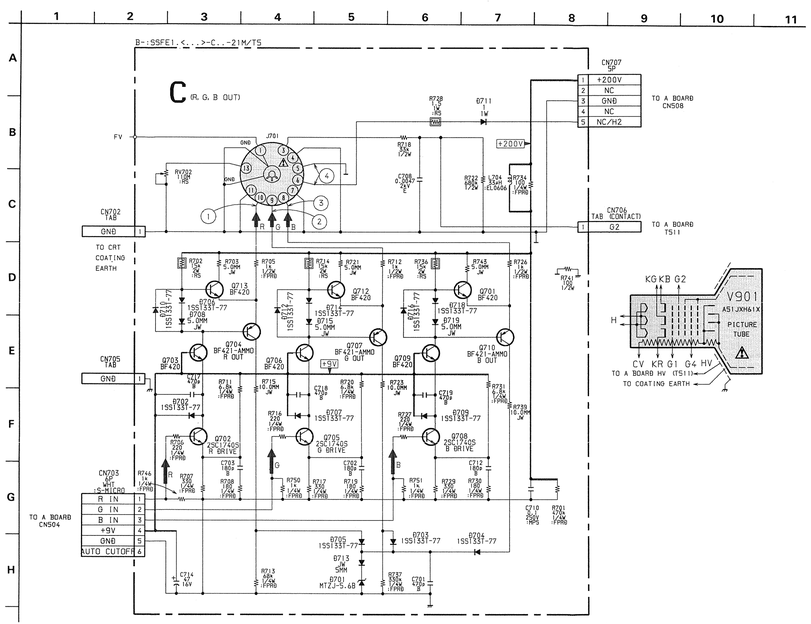
A BOARD * MARK

Ref	21M5D	21M5K	21T5D	21T5K	21T5R
C606	220MF 400V	220MF 400V	220MF 400V	220MF 400V	220MF 450V
C638	10MF 400V	10MF 450V	10MF 400V	10MF 450V	10MF 450V
CF102	-	1-567-101-11	-	1-567-101-11	1-567-101-11
CF104	-	TRAP CERAMIC 6.5MHZ	-	TRAP CERAMIC 6.5MHZ	TRAP CERAMIC 6.5MHZ
D103	-	DAN202K	-	DAN202K	DAN202K
IC001	SAA5491PS/M1A/088	SAA5491PS/M1A/088	SAA5498PS/M1A/081	SAA5498PS/M1A/079	SAA5498PS/M1A/080
Q104	-	DTC144EK	-	DTC144EK	DTC144EK
Q105	-	DTC144EK	-	DTC144EK	DTC144EK
R114	-	3.3K	-	3.3K	3.3K
R115	-	3.3K	-	3.3K	3.3K
R135	-	560	-	560	560
R150	-	100	-	100	100
SWF101	FILTER, SURFACE WAVE	FILTER, SAW-TOOTH WAVE	FILTER, SURFACE WAVE	FILTER, SAW-TOOTH WAVE	FILTER, SAW-TOOTH WAVE

C [R, G, B OUT]

C Board



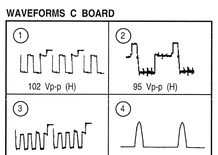


C BOARD TRANSISTOR VOLTAGE TABLE

Translator Voltage Table

Ref No	(B) Base	(C) Collector	(E) Emitter
Q702	1.5	8.3	1.1
Q703	8.8	169.8	8.3
Q704	169.5	1.9	209.5
Q705	1.5	8.3	1.1
Q706	8.8	170.7	8.3
Q707	170.5	1.9	215.7
Q708	1.5	8.3	1.0
Q709	8.9	171.3	8.3
Q710	171.2	1.9	206.3

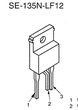
WAVEFORMS C BOARD



5-4 SEMICONDUCTORS

LM393N
TDA2822M
TEA2124

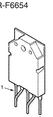
SE-135N
SE-135N-LF12



SAA5498PS/M1A/079
SAA5498PS/M1A/080
SAA5498PS/M1A/081
SAA5498PS/M1A/088

SBX1981-51

STR-F6654



STV9379

ST24W08FM6TR

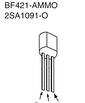
TDA7494

TDA9817-V1

TOP209P

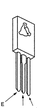
TYA7805CTV

BF421-AMMO
2SA1091-O



DTC114EK
DTC114EKA-T146
DTC144EKA-T146R
2SA1037K-T-146-QR
2SC2412K-QR
2SC2412K-T-146-R

2SC688-LK



2SA933AS-QRT
2SA933AS-RT
2SC1740S-RT

AK04-V1
AU-01Z-V1
DINL20-TA
ERB44-06TP1
EG-1Z-V1
EL-1Z
ERD28-06S
ERC04-06SE
ERC06-15S
FMN-G12S

GP08DPKG23
GP10GPKG23
GP15GPKG23
LSB360HL
RB501V-40TE-T7
RG1CLF-B1
RGPO2-17EL-6433
RGP15GPKG23
RGP10GPKG23
RU-4AM-T3

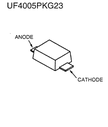
DAN202K
DAN202K-T146

D45B60L-F

AK04VO
AK04WS
ERC04-6SE
HZS9.1NB2
MTZJ-T-77-4.7B
MTZJ-T-77-5.6B
MTZJ-T-77-12B
MTZJ-T-77-22B

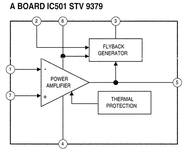
MTZJ-T-77-33A
P6KE200AG23
RD5.6ESB2
RD6.8ES-B2
RN3Z-LF014-302
1SS119-25TD
1SS133T-77

UF4005PKG23

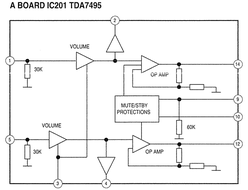


5-5. IC BLOCK DIAGRAMS

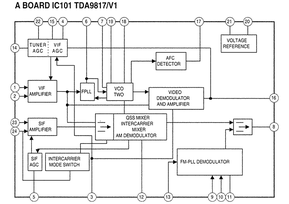
A BOARD IC501 STV 9379



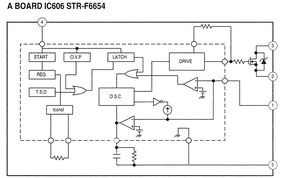
A BOARD IC201 TDA7495



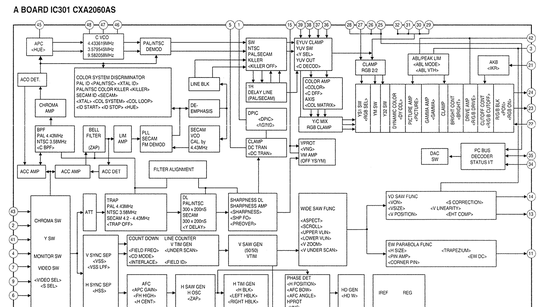
A BOARD IC101 TDA9817/V1



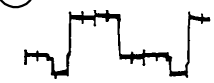
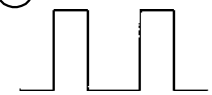
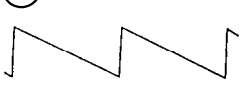
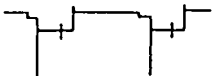
A BOARD IC606 STR-F6654



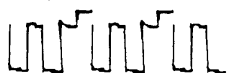
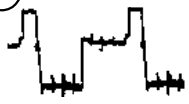
A BOARD IC301 CXA2060AS



WAVEFORMS A BOARD

① PAL 1.0 Vp-p (H)	① SECAM 1.3 Vp-p (H)	② PAL 1.0 Vp-p (H)	② SECAM 1.3 Vp-p (H)	③ 2.6 Vp-p (H)
④  2.6 Vp-p (H)	⑤ 0.5 Vp-p (H)	⑥  5.0 Vp-p (H)	⑦  1.4 Vp-p (H)	⑧ 2.0 Vp-p (H)
⑨ 146 Vp-p (V)	⑩  12 Vp-p (H)	⑪ 142 Vp-p (H)	⑫ 56 Vp-p (V)	⑬ 290 Vp-p (H)
⑭ 1.1KVp-p (H)	⑮ PAL 2.4 Vp-p (H)	⑮ SECAM 3.0 Vp-p (H)		

WAVEFORMS C BOARD

①  102 Vp-p (H)	②  95 Vp-p (H)
③ 93 Vp-p (H)	④ 24 Vp-p (H)

5-4 SEMICONDUCTORS

LM393N
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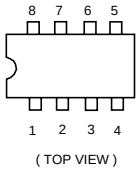
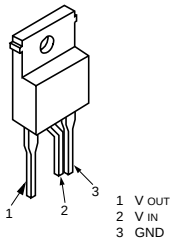
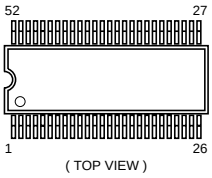
TEA2124



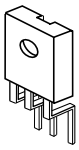
SE-135N
SE-135N-LF12



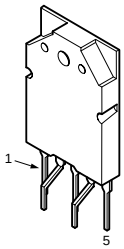
SAA5498PS/M1A/079
SAA5498PS/M1A/080
SAA5498PS/M1A/081
SAA5498PS/M1A/088



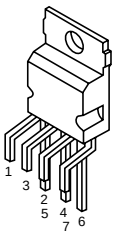
SBX1981-51



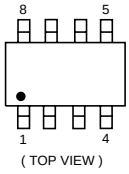
STR-F6654



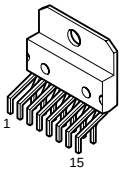
STV9379



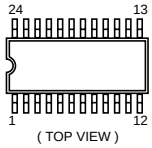
ST24W08FM6TR



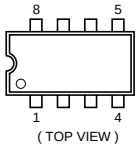
TDA7494



TDA9817-V1



TOP209P



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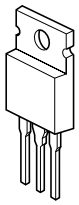

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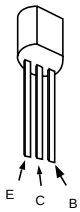
2SA1091-O



DTC114EK
DTC114EKA-T146
DTC144EKA-T-146R
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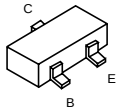
2SC2412K-QR
2SC2412K-T-146-R



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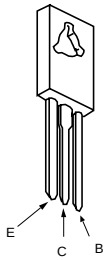

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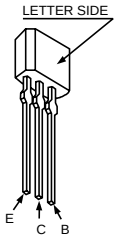
2SA933AS-RT
2SC1740S-RT



AK04-V1
AU-01Z-V1
DINL20-TA
ERB44-06TP1
EG-1Z-V1
EL1Z
ERD28-06S
ERC04-06SE
ERC06-15S
FMN-G12S
GP08DPKG23
GP10GPKG23
GP15GPKG23
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RG1CLF-B1
RGPO2-17EL-6433
RGP15GPKG23
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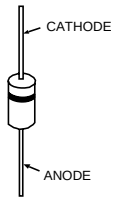
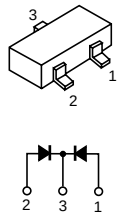
RU-4AM-T3



DAN202K
DAN202K-T146



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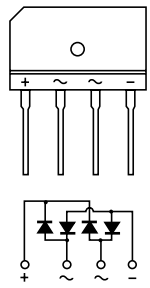

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MTZJ-T-77-12B
MTZJ-T-77-22B
MTZJ-T-77-33A
P6KE200AG23
RD5.6ESB2
RD6.8ES-B2
RN3Z-LF014-302
1SS119-25TD
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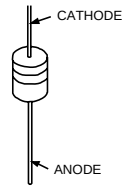

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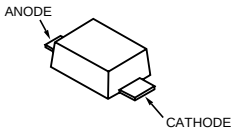
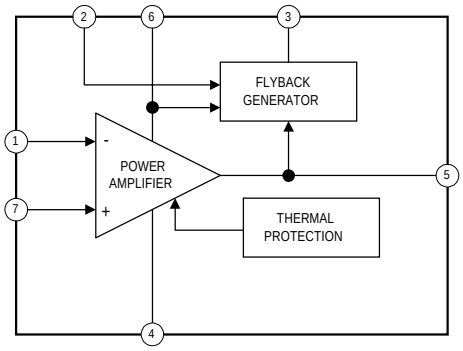
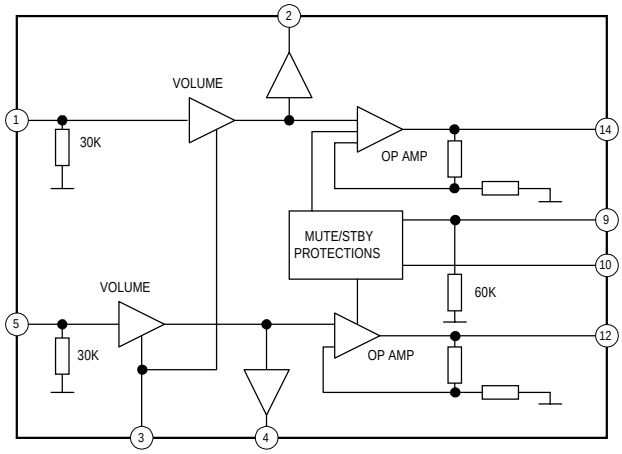


5-5. IC BLOCK DIAGRAMS

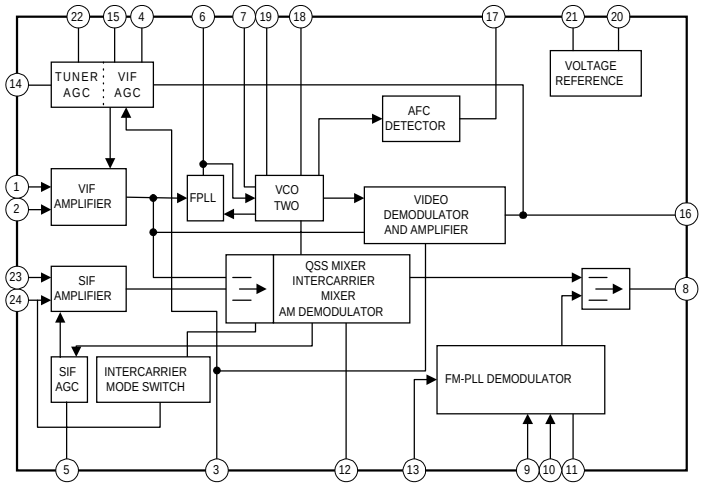
A BOARD IC501 STV 9379



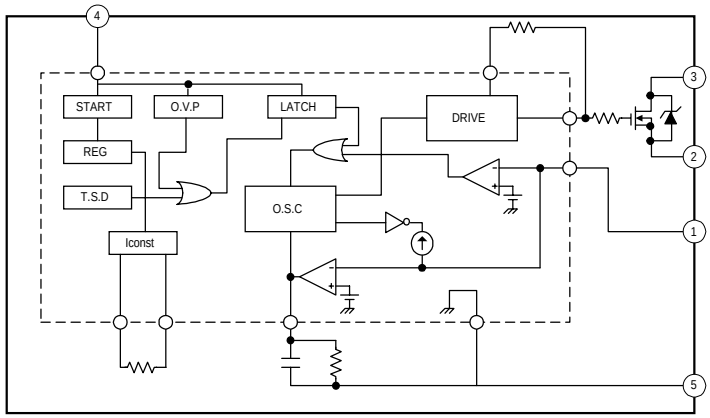
A BOARD IC201 TDA7495



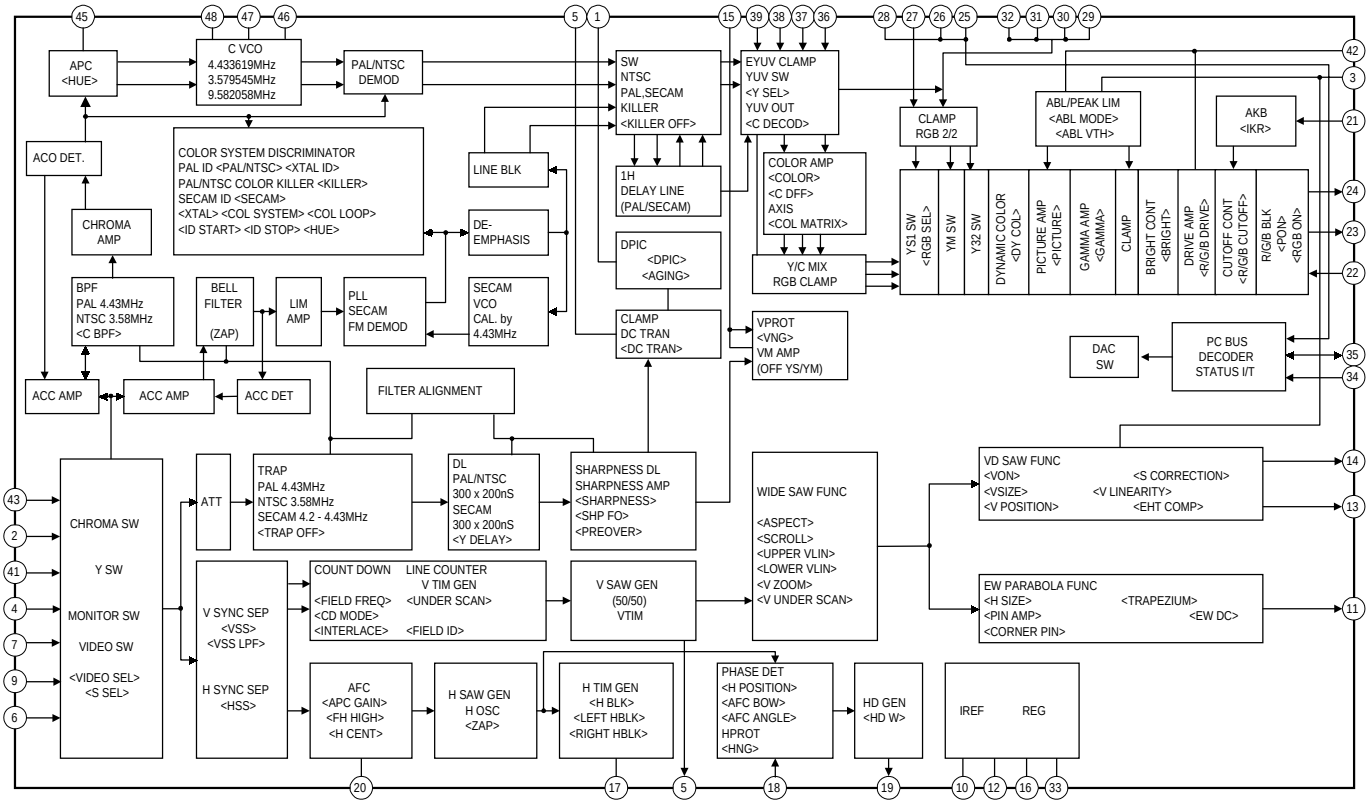
A BOARD IC101 TDA9817/V1



A BOARD IC606 STR-F6654



A BOARD IC301 CXA2060AS



SECTION 7
ELECTRICAL PARTS LIST

Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
-
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- RESISTORS
- All resistors are in ohms.
- F : nonflammable.

When indicating parts by reference number, please include the board name.

CAPACITORS MF : mF, PF : mmF

COILS MMH : mH , uH

A

REF. NO.	PART.NO	DESCRIPTION	REMARK
	*A-1632-811-A	A BOARD, COMPLETE (KV-21M5D)	
		**********	
	*A-1632-809-A	A BOARD, COMPLETE (KV-21M5K)	
		**********	
	*A-1632-812-A	A BOARD, COMPLETE (KV-21T5D)	
		**********	
	*A-1632-813-A	A BOARD, COMPLETE (KV-21T5K)	
		**********	
	*A-1632-810-A	A BOARD, COMPLETE (KV-21T5R)	
		**********	
	4-203-258-01	HOLDER, LED	
	4-382-854-01	SCREW (M3X8), P, SW (+)	
	4-382-854-11	SCREW (M3X10), P, SW (+)	
		< CAPACITOR >	
C001	1-104-665-11	ELECT 100MF 20%	25V
C002	1-126-965-11	ELECT 22MF 20%	50V
C004	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C005	1-163-105-00	CERAMIC CHIP 33PF 5%	50V
C006	1-163-105-00	CERAMIC CHIP 33PF 5%	50V
C007	1-126-935-11	ELECT 470MF 20%	16V
C008	1-126-964-11	ELECT 10MF 20%	50V
C009	1-126-965-11	ELECT 22MF 20%	50V
C011	1-126-965-11	ELECT 22MF 20%	50V
C012	1-126-959-11	ELECT 0.47MF 20%	50V
C013	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C016	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C018	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C019	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C022	1-126-935-11	ELECT 470MF 20%	16V
C024	1-104-665-11	ELECT 100MF 20%	25V
C025	1-104-664-11	ELECT 47MF 20%	10V
C029	1-163-077-00	CERAMIC CHIP 0.1MF 10%	25V
C030	1-104-665-91	ELECT 470MF 20%	6.3V
C031	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C032	1-163-077-00	CERAMIC CHIP 0.1MF 10%	25V
C033	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C035	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C036	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C037	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C038	1-126-964-11	ELECT 10MF 20%	50V
C039	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C040	1-163-001-11	CERAMIC CHIP 220PF 10%	50V
C041	1-163-205-00	CERAMIC CHIP 0.001MF 10%	50V
C042	1-126-933-11	ELECT 100MF 20%	16V
C043	1-126-935-11	ELECT 470MF 20%	16V
C101	1-164-665-11	CERAMIC CHIP 0.039MF 10%	50V
C102	1-164-665-11	CERAMIC CHIP 0.039MF 10%	50V
C103	1-104-665-11	ELECT 100MF 20%	25V
C105	1-126-965-11	ELECT 22MF 20%	50V
C106	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C107	1-164-232-11	CERAMIC CHIP 0.01MF 10%	50V
C108	1-163-465-11	CERAMIC CHIP 9PF 0.25PF	50V
C109	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C110	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C111	1-216-296-00	SHORT 0	
C112	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C113	1-126-965-11	ELECT 22MF 20%	50V
C114	1-163-037-11	CERAMIC CHIP 0.022MF 10%	50V
C115	1-164-489-11	CERAMIC CHIP 0.22MF 10%	16V
C116	1-126-961-11	ELECT 2.2MF 20%	50V
C117	1-126-961-11	ELECT 2.2MF 20%	50V
C118	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C119	1-163-009-11	CERAMIC CHIP 0.001MF 10%	50V
C120	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C126	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C127	1-164-005-11	CERAMIC CHIP 0.47MF	16V
C128	1-164-005-11	CERAMIC CHIP 0.47MF	16V
C129	1-104-664-11	ELECT 47MF 20%	16V
C130	1-164-005-11	CERAMIC CHIP 0.47MF	16V
C131	1-163-038-00	CERAMIC CHIP 0.1MF	25V

A

REF. NO.	PART.NO	DESCRIPTION			REMARK
C134	1-128-551-11	ELECT	22MF	20%	25V
C135	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C138	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C139	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C140	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C141	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C142	1-104-664-11	ELECT	47MF	20%	16V
C143	1-104-664-11	ELECT	47MF	20%	25V
C146	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C160	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C201	1-104-666-11	ELECT	220MF	20%	25V
C203	1-126-942-61	ELECT	1000MF	20%	25V
C206	1-126-960-11	ELECT	1MF	20%	50V
C207	1-126-972-11	ELECT	1000MF	20%	50V
C209	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C210	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C211	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C214	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C215	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C301	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C302	1-104-664-11	ELECT	47MF	20%	16V
C303	1-101-004-00	CERAMIC	0.01MF		50V
C304	1-126-964-11	ELECT	10MF	20%	50V
C305	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C307	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C308	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C309	1-126-963-11	ELECT	4.7MF	20%	50V
C312	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C313	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C314	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C316	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C317	1-136-169-00	FILM	0.22MF	5%	50V
C319	1-126-964-11	ELECT	10MF	20%	50V
C321	1-126-963-11	ELECT	4.7MF	20%	50V
C322	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C328	1-104-664-11	ELECT	47MF	20%	25V
C329	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C330	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C331	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C332	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C333	1-126-960-11	ELECT	1MF	20%	50V
C334	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C335	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C336	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C337	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C338	1-126-967-11	ELECT	47MF	20%	50V
C339	1-163-038-00	CERAMIC CHIP	0.1MF		25V

REF. NO.	PART.NO	DESCRIPTION			REMARK
C350	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C351	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C401	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C402	1-126-960-11	ELECT	1MF	20%	50V
C403	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C405	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C406	1-126-960-11	ELECT	1MF	20%	50V
C407	1-126-964-11	ELECT	10MF	20%	50V
C408	1-126-964-11	ELECT	10MF	20%	50V
C410	1-126-964-11	ELECT	10MF	20%	50V
C426	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C427	1-535-303-00	LEAD, JUMPER (5.0MM)			
C433	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C434	1-126-935-11	ELECT	470MF	20%	16V
C437	1-126-960-11	ELECT	1MF	20%	50V
C445	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C501	1-126-968-11	ELECT	100MF	20%	50V
C502	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C503	1-126-968-11	ELECT	100MF	20%	50V
C504	1-106-220-00	MYLAR	0.1MF	10%	100V
C505	1-136-173-00	FILM	0.47MF	5%	50V
C506	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C507	1-126-933-11	ELECT	100MF	20%	16V
C508	1-126-960-11	ELECT	1MF	20%	50V
C509	1-107-364-11	MYLAR	0.01MF	10%	200V
C510	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C513	1-107-662-11	ELECT	22MF	20%	250V
C515	1-104-666-11	ELECT	220MF	20%	25V
C517	1-104-666-11	ELECT	220MF	20%	25V
C518	1-106-375-12	MYLAR	0.022MF	99%	200V
C519	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C520	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C531	1-126-964-11	ELECT	10MF	20%	50V
C532	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C535	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C536	1-107-804-11	FILM	0.68MF	5%	200V
C537	1-137-417-11	MYLAR	0.0047MF	10%	200V
C538	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C539	1-107-642-91	ELECT	3.3MF	20%	200V
C541	1-106-383-00	MYLAR	0.047MF	10%	200V
C542	1-162-116-00	CERAMIC	680PF	10%	2KV
C543	1-162-134-11	CERAMIC	470PF	10%	2KV
C545	1-126-960-11	ELECT	1MF	20%	50V
C546	1-129-746-00	FILM	0.039MF	5%	400V
C547	1-115-522-11	FILM	1MF	5%	200V
C548	1-162-134-11	CERAMIC	470PF	10%	2KV
C550	1-107-638-11	ELECT	33MF	20%	160V

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

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REF. NO.		PART.NO	DESCRIPTION			REMARK
C552		1-102-212-00	CERAMIC	820PF	10%	500V
C553		1-106-359-00	MYLAR	0.0047MF	10%	100V
C555		1-117-644-11	FILM	10000PF	3%	1.2KV
C571		1-123-024-21	ELECT	33MF		160V
C572		1-104-665-11	ELECT	100MF	20%	10V
C580		1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C582		1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C584		1-126-963-11	ELECT	4.7MF	20%	50V
C601	⚠	1-107-563-11	FILM	0.1MF	20%	300V
C602	⚠	1-107-563-11	FILM	0.1MF	20%	300V
C603	⚠	1-117-700-51	CERAMIC	0.0022MF	99%	250V
C604	⚠	1-117-700-51	CERAMIC	0.0022MF	99%	250V
C605		1-104-652-11	ELECT	470MF	20%	10V
C606		1-125-318-00	ELECT(BLOCK)	220MF	20%	400V
				(KV-21M5D/21M5D/21M5K/21T5K)		
		1-117-751-11	ELECT(BLOCK)	220MF	20%	450V
						(KV-21T5R)
C607		1-161-754-00	CERAMIC	0.001MF	10%	2KV
C609		1-126-953-11	ELECT	2200MF	20%	50V
C610		1-104-665-11	ELECT	100MF	20%	25V
C611		1-165-127-11	CERAMIC	470PF	10%	500V
C612	⚠	1-161-964-51	CERAMIC	0.0047MF		250V
C613	⚠	1-161-964-51	CERAMIC	0.0047MF		250V
C614		1-162-599-12	CERAMIC	0.0047MF		250V
C615		1-130-202-00	FILM	0.022MF	10%	400V
C618		1-128-890-11	ELECT	2200MF	20%	25V
C621		1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C622	⚠	1-161-964-51	CERAMIC	0.0047MF		250V
C624		1-104-665-11	ELECT	100MF	20%	25V
C625		1-104-665-11	ELECT	100MF	20%	25V
C628		1-124-347-00	ELECT	100MF	20%	160V
C629		1-136-189-00	FILM	0.1MF	10%	250V
C630		1-165-127-11	CERAMIC	470PF	10%	500V
C633		1-104-332-11	CERAMIC	470PF	10%	2KV
C635		1-107-675-11	ELECT	1MF	20%	160V
C638		1-107-670-11	ELECT	10MF	20%	400V
						(KV-21M5D/21T5D)
		1-107-679-91	ELECT	10MF	20%	450V
						(KV-21M5K/21T5K/21T5R)
C639		1-104-665-11	ELECT	100MF	20%	25V
C640		1-104-664-11	ELECT	47MF	20%	25V
C641		1-104-665-11	ELECT	100MF	20%	25V
C642		1-104-665-11	ELECT	100MF	20%	25V

< FILTER >

CF101	1-404-801-11	TRAP, CERAMIC	
CF102	1-567-101-11	FILTER, CERAMIC	(KV-21M5K/21T5K/21T5R)
CF103	1-760-106-11	FILTER, CERAMIC	
CF104	1-409-327-00	TRAP, CERAMIC (6.5MHZ)	
			(KV-21M5K/21T5K/21T5R)
SWF101	1-579-120-11	FILTER, SURFACE WAVE	(KV-21M5D/21T5D)
	1-579-414-11	FILTER, SAWTOOTH WAVE	
			(KV-21M5K/21T5K/21T5R)

< CONNECTOR >

CN001	*1-564-508-11	PLUG, CONNECTOR 5P	
CN201	*1-564-507-11	PLUG, CONNECTOR 4P	
CN501	*1-580-798-11	CONNECTOR PIN (DY)	
CN504	*1-564-509-11	PLUG, CONNECTOR 6P	
CN506	1-695-915-11	TAB (CONTACT)	
CN508	*1-564-508-51	PLUG, CONNECTOR 5P	
CN601 ⚠	*1-580-843-11	PIN, CONNECTOR (POWER)	
CN602 ⚠	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P	
CN603 ⚠	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	

< DIODE >

D001	8-719-109-89	DIODE RD5.6ESB2	
D002	8-719-109-89	DIODE RD5.6ESB2	
D003	8-719-057-56	DIODE LS5360HL	
D004	8-719-109-89	DIODE RD5.6ESB2	
D005	8-719-109-89	DIODE RD5.6ESB2	
D007	8-719-109-89	DIODE RD5.6ESB2	
D008	8-719-991-33	DIODE 1SS133T-77	
D009	8-719-109-89	DIODE RD5.6ESB2	
D010	8-719-109-89	DIODE RD5.6ESB2	
D011	8-719-109-89	DIODE RD5.6ESB2	
D012	8-719-914-43	DIODE DAN202K	
D014	8-719-058-24	DIODE RB501V-40TE-17	
D015	8-719-914-43	DIODE DAN202K	
D017	8-719-109-89	DIODE RD5.6ESB2	
D018	8-719-991-33	DIODE 1SS133T-77	
D023	8-719-109-89	DIODE RD5.6ESB2	
D101	8-759-157-40	DIODE UPC574J	
D103	8-719-914-43	DIODE DAN202K	(KV-21M5K/21T5K/21T5R)
D201	8-719-929-15	DIODE HZS9.1NB2	
D202	8-719-914-43	DIODE DAN202K	
D204	8-719-109-89	DIODE RD5.6ESB2	
D205	8-719-109-89	DIODE RD5.6ESB2	
D206	8-719-109-89	DIODE RD5.6ESB2	
D306	8-719-109-89	DIODE RD5.6ESB2	
D307	8-719-109-89	DIODE RD5.6ESB2	
D308	8-719-109-72	DIODE RD3.9ES-B2	
D320	8-719-929-15	DIODE HZS9.1NB2	
D402	8-719-109-89	DOIDE RD5.6ESB2	
D405	8-719-109-97	DIODE RD6.8ES-B2	

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

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REF. NO.	PART.NO	DESCRIPTION	REMARK
D406	8-719-109-97	DIODE RD6.8ES-B2	
D407	8-719-109-97	DIODE RD6.8ES-B2	
D408	8-719-929-15	DIODE HZS9.1NB2	
D414	8-719-109-97	DIODE RD6.8ES-B2	
D420	8-719-109-97	DIODE RD6.8ES-B2	
D423	8-719-109-97	DIODE RD6.8ES-B2	
D424	8-719-929-15	DIODE HZS9.1NB2	
D430	8-719-109-97	DIODE RD6.8ES-B2	
D501	8-719-908-03	DIODE GP08D	
D502	8-719-924-13	DIODE MTZJ-T-77-22B	
D512	8-719-908-03	DIODE GP08D	
D513	8-719-908-03	DIODE GP08D	
D514	8-719-908-03	DIODE GP08D	
D534	8-719-908-03	DIODE GP08D	
D536	8-719-945-80	DIODE ERC06-15S	
D539	8-719-928-08	DIODE ERD28-08S	
D541	1-535-303-00	LEAD, JUMPER (5.0MM)	
D571	8-719-911-19	DIODE 1SS119-25	
D573	8-719-921-40	DIODE MTZJ-4.7C	
D601	8-719-510-53	DIODE D4SB60L	
D602	8-719-046-74	DIODE AU-01Z-V1	
D603	8-719-046-74	DIODE AU-01Z-V1	
D605	8-719-312-10	DIODE RU4AM-T3	
D608	8-719-067-88	DIODE RG1CLF-B1	
D610	8-719-064-47	DIODE RN1Z	
D613	8-719-911-19	DIODE 1SS119-25	
D619	8-719-043-76	DIODE AK04V0	
D621	8-719-068-00	DIODE ERC04-06SE	
D626	8-719-068-00	DIODE ERC04-06SE	
D627	8-719-510-64	DIODE S2LA20F	
D628	8-719-059-23	DIODE P6KE200AG23	
D629	8-719-979-64	DIODE UF4005PKG23	
D631	8-719-110-31	DIODE RD12ES-B2	
D632	8-719-510-64	DIODE S2LA20F	
D633	8-719-109-89	DIODE RD5.6ESB2	
D634	8-719-064-47	DIODE RN1Z	
		< FUSE >	
F601	⚠ 1-576-232-21	FUSE (H.B.C.) 5AMP 250V	
	⚠ *1-533-725-11	HOLDER, FUSE (F601)	
		< FERRITE BEAD >	
FB001	1-412-911-11	FERRITE 0UH	
FB002	1-412-911-11	FERRITE 0UH	
FB601	1-412-911-11	FERRITE 0UH	
FB602	1-412-911-11	FERRITE 0UH	
FB605	1-410-397-21	FERRITE 1.1UH	
FB608	1-412-911-11	FERRITE 0UH	
FB609	1-410-396-41	FERRITE 0.45UH	
FB610	1-410-397-21	FERRITE 1.1UH	
FB611	1-410-397-21	FERRITE 1.1UH	
FB612	1-535-303-00	LEAD, JUMPER (5.0MM)	
		< IC >	
IC001	8-759-542-54	IC SAA5491PS/M1A/088	(KV-21M5D/21M5K)
	8-759-542-58	IC SAA5498PS/M1A/081	(KV-21T5D)
	8-759-542-67	IC SAA5498PS/M1A/079	(KV-21T5K)
	8-759-542-65	IC SAA5498PS/M1A/080	(KV-21T5R)
IC002	8-742-014-11	HYB IC SBX1981-51	
IC003	8-759-468-56	IC MN1381-T(TA)	
IC004	8-759-432-33	IC ST24W08FM6TR	
IC101	8-759-466-49	IC TDA9817/V1	
IC201	8-759-442-73	IC TDA7494	
IC301	8-752-088-38	IC CXA2060BS	
IC501	8-759-192-71	IC STV9379	
IC531	8-759-450-95	IC LM393N	
IC603	8-749-920-61	IC SE135N	
IC604	8-759-524-82	IC TYA7805CTV	
IC605	8-759-267-25	IC LM2940T-9.0	
IC606	8-749-014-89	IC STR-F6652	
IC608	8-759-524-82	IC TYA7805CTV	
IC609	8-759-468-89	IC TOP209P	
		< PHOTO COUPLER >	
PH601	⚠ 8-749-010-64	PHOTO COUPLER PC123F2	
		< SOCKET >	
J201	1-764-606-11	JACK	
J401	1-770-130-11	CONNECTOR (SQUARE TYPE) 21P	
J402	1-784-968-11	JACK, PIN 2P	
		< COIL >	
L001	1-408-603-31	INDUCTOR 10UH	
L102	1-408-602-31	INDUCTOR 8.2UH	
L103	1-403-686-11	COIL	
L104	1-535-303-00	LEAD, JUMPER (5.0MM)	
L106	1-408-611-31	INDUCTOR 47UH	
L107	1-408-605-31	INDUCTOR 15UH	
L110	1-408-611-31	INDUCTOR 47UH	
L202	1-408-591-11	INDUCTOR 1UH	
L203	1-406-979-11	INDUCTOR 0UH	
L204	1-408-603-31	INDUCTOR 10UH	
L205	1-408-603-31	INDUCTOR 10UH	
L301	1-216-295-00	SHORT 0	

REF. NO.	PART.NO	DESCRIPTION	REMARK
L302	1-408-611-31	INDUCTOR 47UH	
L303	1-408-609-41	INDUCTOR 33UH	
L401	1-408-611-31	INDUCTOR 47UH	
L403	1-535-303-00	LEAD, JUMPER (5.0MM)	
L405	1-216-295-00	SHORT 0	
L501	1-408-611-31	INDUCTOR 47UH	
L502	1-412-531-31	INDUCTOR 33UH	
L503	1-412-521-31	INDUCTOR 4.7UH	
L532	1-412-553-11	INDUCTOR 3.3MMH	
L535	1-459-111-00	INDUCTOR 0UH	
L537	1-459-652-12	HLC	
L538	1-459-390-00	INDUCTOR 0UH	
L540	1-535-303-00	LEAD, JUMPER (5.0MM)	
L571	1-412-533-21	INDUCTOR 47UH	
L602	1-408-611-31	INDUCTOR 47UH	
		< TRANSISTOR >	
Q004	8-729-216-22	TRANSISTOR 2SA1162-G	
Q005	1-801-806-11	TRANSISTOR DTC144EKA	
Q006	1-801-806-11	TRANSISTOR DTC144EKA	
Q007	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q008	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q009	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q010	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q011	1-801-806-11	TRANSISTOR DTC144EKA	
Q012	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q014	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q101	8-729-216-22	TRANSISTOR 2SA1162-G	
Q102	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q103	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q104	1-801-806-11	TRANSISTOR DTC144EKA (KV-21M5K/21T5K/21T5R)	
Q105	1-801-806-11	TRANSISTOR DTC144EKA (KV-21M5K/21T5K/21T5R)	
Q106	8-729-216-22	TRANSISTOR 2SA1162-G	
Q202	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q401	8-729-216-22	TRANSISTOR 2SA1162-G	
Q408	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q501	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q532	8-729-038-83	TRANSISTOR 2SK2251-01-F19	
Q533	8-729-041-25	TRANSISTOR S2055N-16E305A	
Q535	8-729-119-80	TRANSISTOR 2SC2688-LK	
Q571	8-729-105-08	TRANSISTOR 2SA1330-O6	
Q574	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q575	1-801-806-11	TRANSISTOR DTC144EKA	
Q576	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q601	8-729-216-22	TRANSISTOR 2SA1162-G	

REF. NO.	PART.NO	DESCRIPTION	REMARK
		< RESISTOR >	
JR012	1-216-295-00	SHORT 0	
JR023	1-216-296-00	SHORT 0	
JR032	1-216-295-00	SHORT 0	
JR089	1-216-295-00	SHORT 0	
JR090	1-216-295-00	SHORT 0	
JR101	1-216-295-00	SHORT 0	
JR102	1-216-295-00	SHORT 0	
JR107	1-216-295-00	SHORT 0	
JR108	1-216-077-00	RES,CHIP 15K 5% 1/10W	
JR109	1-216-295-00	SHORT 0	
JR115	1-216-295-00	SHORT 0	
JR116	1-216-295-00	SHORT 0	
JR200	1-216-295-00	SHORT 0	
JR403	1-216-073-00	RES,CHIP 10K 5% 1/10W	
JR412	1-216-077-00	RES,CHIP 15K 5% 1/10W	
JR610	1-216-296-00	SHORT 0	
JR616	1-216-296-00	SHORT 0	
JR617	1-216-296-00	SHORT 0	
JW220	8-719-109-89	DIODE RD5.6ESB2	
R001	1-216-025-00	RES,CHIP 100 5% 1/10W	
R002	1-216-025-00	RES,CHIP 100 5% 1/10W	
R003	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R004	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R005	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R006	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R007	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R008	1-216-025-00	RES,CHIP 100 5% 1/10W	
R009	1-216-025-00	RES,CHIP 100 5% 1/10W	
R010	1-216-025-00	RES,CHIP 100 5% 1/10W	
R011	1-216-025-00	RES,CHIP 100 5% 1/10W	
R012	1-247-807-31	CARBON 100 5% 1/4W	
R013	1-216-214-00	RES,CHIP 4.7K 5% 1/8W	
R014	1-216-057-00	RES,CHIP 2.2K 5% 1/10W	
R015	1-216-049-00	RES,CHIP 1K 5% 1/10W	
R017	1-249-429-11	CARBON 10K 5% 1/4W	
R019	1-216-053-00	RES,CHIP 1.5K 5% 1/10W	
R023	1-216-295-00	SHORT 0	
R029	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R032	1-216-089-00	RES,CHIP 47K 5% 1/10W	
R034	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R035	1-216-049-00	RES,CHIP 1K 5% 1/10W	
R036	1-216-065-00	RES,CHIP 4.7K 5% 1/10W	
R038	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R039	1-216-089-00	RES,CHIP 47K 5% 1/10W	
R044	1-216-295-00	SHORT 0	

A

REF. NO.	PART.NO	DESCRIPTION			REMARK
R045	1-216-295-00	SHORT	0		
R046	1-216-085-00	RES,CHIP	33K	5%	1/10W
R047	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R048	1-216-079-00	RES,CHIP	18K	5%	1/10W
R049	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R050	1-216-041-00	RES,CHIP	470	5%	1/10W
R051	1-216-049-00	RES,CHIP	1K	5%	1/10W
R053	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R054	1-216-041-00	RES,CHIP	470	5%	1/10W
R055	1-216-081-00	RES,CHIP	22K	5%	1/10W
R056	1-216-105-91	RES,CHIP	220K	5%	1/10W
R057	1-216-075-00	RES,CHIP	12K	5%	1/10W
R058	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R059	1-216-089-00	RES,CHIP	47K	5%	1/10W
R060	1-216-174-00	RES,CHIP	100	5%	1/8W
R061	1-216-174-00	RES,CHIP	100	5%	1/8W
R062	1-216-033-00	RES,CHIP	220	5%	1/10W
R064	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
					(KV-21M5K/21T5K/21T5R)
R065	1-216-025-00	RES,CHIP	100	5%	1/10W
R066	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R067	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R068	1-216-073-00	RES,CHIP	10K	5%	1/10W
R069	1-216-049-00	RES,CHIP	1K	5%	1/10W
R070	1-216-081-00	RES,CHIP	22K	5%	1/10W
R071	1-216-214-00	RES,CHIP	4.7K	5%	1/8W
R072	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R075	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R077	1-216-083-00	RES,CHIP	27K	5%	1/10W
R078	1-216-049-00	RES,CHIP	1K	5%	1/10W
R079	1-216-049-00	RES,CHIP	1K	5%	1/10W
R080	1-216-049-00	RES,CHIP	1K	5%	1/10W
R081	1-216-049-00	RES,CHIP	1K	5%	1/10W
R082	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R083	1-216-031-00	RES,CHIP	180	5%	1/10W
R084	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R085	1-216-031-00	RES,CHIP	180	5%	1/10W
R086	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R087	1-216-180-00	RES,CHIP	180	5%	1/8W
R088	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R093	1-216-230-00	RES,CHIP	22K	5%	1/8W
R094	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R095	1-216-025-00	RES,CHIP	100	5%	1/10W
R096	1-247-807-31	CARBON	100	5%	1/4W
R097	1-247-807-31	CARBON	100	5%	1/4W
R098	1-247-807-31	CARBON	100	5%	1/4W
R101	1-216-049-00	RES,CHIP	1K	5%	1/10W
R102	1-216-109-00	RES,CHIP	330K	5%	1/10W
R104	1-216-081-00	RES,CHIP	22K	5%	1/10W
R105	1-216-081-00	RES,CHIP	22K	5%	1/10W
R106	1-215-900-11	METAL OXIDE	22K	5%	2W F
R107	1-216-230-00	RES,CHIP	22K	5%	1/8W
R108	1-216-073-00	RES,CHIP	10K	5%	1/10W
R109	1-216-073-00	RES,CHIP	10K	5%	1/10W
R113	1-216-049-00	RES,CHIP	1K	5%	1/10W
R114	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
					(KV-21M5K/21T5K/21T5R)
R115	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
					(KV-21M5K/21T5K/21T5R)
R117	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R118	1-216-295-00	SHORT	0		
R119	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R120	1-216-037-00	RES,CHIP	330	5%	1/10W
R123	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R124	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R125	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R131	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R132	1-216-295-00	SHORT	0		
R135	1-216-043-91	RES,CHIP	560	5%	1/10W
					(KV-21M5K/21T5K/21T5R)
R136	1-216-043-91	RES,CHIP	560	5%	1/10W
R142	1-216-295-00	SHORT	0		
R143	1-216-029-00	RES,CHIP	150	5%	1/10W
R144	1-216-079-00	RES,CHIP	18K	5%	1/10W
R145	1-216-212-00	RES,CHIP	3.9K	5%	1/8W
R150	1-216-025-00	RES,CHIP	100	5%	1/10W
					(KV-21M5K/21T5K/21T5R)
R151	1-216-049-00	RES,CHIP	1K	5%	1/10W
R154	1-216-238-91	RES,CHIP	47K	5%	1/8W
R155	1-216-089-00	RES,CHIP	47K	5%	1/10W
R201	1-260-091-11	CARBON	220	5%	1/2W
R204	1-247-863-91	CARBON	22K	5%	1/4W
R205	1-260-091-11	CARBON	220	5%	1/2W
R206	1-216-085-00	RES,CHIP	33K	5%	1/10W
R209	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R211	1-215-873-00	METAL OXIDE	4.7K	5%	1W F
R301	1-216-025-00	RES,CHIP	100	5%	1/10W
R302	1-216-073-00	RES,CHIP	10K	5%	1/10W
R303	1-216-073-00	RES,CHIP	10K	5%	1/10W
R304	1-216-073-00	RES,CHIP	10K	5%	1/10W
R305	1-412-002-31	INDUCTOR CHIP	4.7UH		
R306	1-216-206-00	RES,CHIP	2.2K	5%	1/8W
R309	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R310	1-216-022-00	RES,CHIP	75	5%	1/10W

REF. NO.	PART.NO	DESCRIPTION			REMARK
R313	1-216-025-00	RES,CHIP	100	5%	1/10W
R314	1-216-025-00	RES,CHIP	100	5%	1/10W
R315	1-216-075-00	RES,CHIP	12K	5%	1/10W
R316	1-216-025-00	RES,CHIP	100	5%	1/10W
R317	1-216-049-00	RES,CHIP	1K	5%	1/10W
R318	1-216-025-00	RES,CHIP	100	5%	1/10W
R319	1-216-025-00	RES,CHIP	100	5%	1/10W
R320	1-216-025-00	RES,CHIP	100	5%	1/10W
R321	1-216-025-00	RES,CHIP	100	5%	1/10W
R323	1-216-025-00	RES,CHIP	100	5%	1/10W
R324	1-412-002-31	INDUCTOR CHIP	4.7UH		
R325	1-412-002-31	INDUCTOR CHIP	4.7UH		
R326	1-216-129-00	RES,CHIP	2.2M	5%	1/10W
R331	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R332	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R333	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R334	1-216-025-00	RES,CHIP	100	5%	1/10W
R335	1-216-025-00	RES,CHIP	100	5%	1/10W
R338	1-216-049-00	RES,CHIP	1K	5%	1/10W
R401	1-216-113-00	RES,CHIP	470K	5%	1/10W
R402	1-216-077-00	RES,CHIP	15K	5%	1/10W
R403	1-216-041-00	RES,CHIP	470	5%	1/10W
R404	1-216-113-00	RES,CHIP	470K	5%	1/10W
R405	1-216-295-00	SHORT	0		
R406	1-216-113-00	RES,CHIP	470K	5%	1/10W
R408	1-216-022-00	RES,CHIP	75	5%	1/10W
R409	1-216-025-00	RES,CHIP	100	5%	1/10W
R410	1-216-025-00	RES,CHIP	100	5%	1/10W
R411	1-216-022-00	RES,CHIP	75	5%	1/10W
R412	1-216-025-00	RES,CHIP	100	5%	1/10W
R413	1-216-295-00	SHORT	0		
R414	1-216-022-00	RES,CHIP	75	5%	1/10W
R415	1-216-022-00	RES,CHIP	75	5%	1/10W
R417	1-247-804-11	CARBON	75	5%	1/4W
R418	1-249-413-11	CARBON	470	5%	1/4W
R419	1-216-022-00	RES,CHIP	75	5%	1/10W
R420	1-216-041-00	RES,CHIP	470	5%	1/10W
R421	1-216-113-00	RES,CHIP	470K	5%	1/10W
R422	1-216-295-00	SHORT	0		
R425	1-216-077-00	RES,CHIP	15K	5%	1/10W
R426	1-216-073-00	RES,CHIP	10K	5%	1/10W
R445	1-216-171-00	RES,CHIP	75	5%	1/8W
R446	1-216-113-00	RES,CHIP	470K	5%	1/10W
R447	1-216-077-00	RES,CHIP	15K	5%	1/10W
R450	1-216-041-00	RES,CHIP	470	5%	1/10W
R454	1-216-041-00	RES,CHIP	470	5%	1/10W
R455	1-216-295-00	SHORT	0		

REF. NO.	PART.NO	DESCRIPTION			REMARK
R457	1-216-025-00	RES,CHIP	100	5%	1/10W
R459	1-247-807-31	CARBON	100	5%	1/4W
R501	1-216-081-00	RES,CHIP	22K	5%	1/10W
R502	1-216-097-00	RES,CHIP	100K	5%	1/10W
R503	1-215-888-00	METAL OXIDE	220	5%	2W F
R504	1-249-385-11	CARBON	2.2	5%	1/4W F
R505	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W
R506	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R507	1-216-349-00	METAL OXIDE	1	5%	1W F
R508	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W
R509	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R510	1-216-081-00	RES,CHIP	22K	5%	1/10W
R512	1-249-382-11	CARBON	1.2	5%	1/4W F
R514	1-249-377-11	CARBON	0.47	5%	1/4W F
R515	1-249-377-11	CARBON	0.47	5%	1/4W F
R516	1-249-493-11	CARBON	56K	5%	1/2W
R517	1-249-436-11	CARBON	39K	5%	1/4W
R518	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R519	1-216-121-91	RES,CHIP	1M	5%	1/10W
R520	1-215-883-11	METAL OXIDE	33	5%	2W F
R522	1-216-097-00	RES,CHIP	100K	5%	1/10W
R523	1-216-117-00	RES,CHIP	680K	5%	1/10W
R524	1-216-085-00	RES,CHIP	33K	5%	1/10W
R525	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R526	1-216-089-00	RES,CHIP	47K	5%	1/10W
R527	1-216-075-00	RES,CHIP	12K	5%	1/10W
R528	1-216-246-00	RES,CHIP	100K	5%	1/8W
R529	1-216-073-00	RES,CHIP	10K	5%	1/10W
R530	1-216-085-00	RES,CHIP	33K	5%	1/10W
R531	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R532	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R533	1-216-081-00	RES,CHIP	22K	5%	1/10W
R539	1-216-049-00	RES,CHIP	1K	5%	1/10W
R540	1-215-887-00	METAL OXIDE	150	5%	2W F
R541	1-216-105-91	RES,CHIP	220K	5%	1/10W
R542	1-216-089-00	RES,CHIP	47K	5%	1/10W
R543	1-216-089-00	RES,CHIP	47K	5%	1/10W
R545	1-216-129-91	RES,CHIP	2.2M	5%	1/8W
R546	1-249-401-11	CARBON	47	5%	1/4W F
R547	1-535-143-71	LEAD, JUMPER (7.5MM)			
R548	1-212-849-00	FUSIBLE	4.7	5%	1/4W F
R549	1-216-371-00	METAL OXIDE	1.5	5%	2W F
R551	1-215-873-00	METAL OXIDE	4.7K	5%	1W F
R552	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R553	1-249-381-11	CARBON	1	5%	1/4W F
R554	1-216-109-91	RES,CHIP	330K	5%	1/8W
R571	1-249-417-11	CARBON	1K	5%	1/4W F

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

A **C**

REF. NO.		PART.NO	DESCRIPTION			REMARK
R572		1-216-369-00	METAL OXIDE	1	5%	2W F
R573		1-216-101-00	RES,CHIP	150K	5%	1/10W
R574		1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R575		1-216-097-00	RES,CHIP	100K	5%	1/10W
R581		1-216-089-00	RES,CHIP	47K	5%	1/10W
R582		1-216-089-00	RES,CHIP	47K	5%	1/10W
R583		1-216-081-00	RES,CHIP	22K	5%	1/10W
R588		1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R589		1-216-097-00	RES,CHIP	100K	5%	1/10W
R590		1-216-073-00	RES,CHIP	10K	5%	1/10W
R591		1-215-892-11	METAL OXIDE	1K	5%	2W F
R593		1-249-439-11	CARBON	68K	5%	1/4W
R594		1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R595		1-249-377-11	CARBON	0.47	5%	1/4W F
R602		1-202-961-11	CEMENTED	1.8	5%	10W
R603		1-202-933-61	FUSIBLE	0.1	10%	1/2W F
R607	⚠	1-202-961-11	CEMENTED	1.8	5%	10W
R608		1-215-927-00	METAL OXIDE	47K	5%	3W F
R611		1-249-415-11	CARBON	680	5%	1/4W
R613	⚠	1-240-030-91	METAL	4.7M	5%	1/2W
R614	⚠	1-240-030-91	METAL	4.7M	5%	1/2W
R615		1-249-420-11	CARBON	1.8K	5%	1/4W
R616		1-216-397-11	METAL OXIDE	4.7	5%	3W F
R617		1-249-405-11	CARBON	100	5%	1/4W F
R619		1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R622		1-249-393-11	CARBON	10	5%	1/4W
R627		1-249-385-11	CARBON	2.2	5%	1/4W F
R628		1-247-791-91	CARBON	22	5%	1/4W
R652		1-216-397-11	METAL OXIDE	4.7	5%	3W F
R653		1-216-397-11	METAL OXIDE	4.7	5%	3W F
R658		1-215-929-11	METAL OXIDE	100K	5%	3W F
R659		1-216-382-21	METAL OXIDE	0.27	5%	3W F
R661		1-247-843-11	CARBON	3.3K	5%	1/4W
R662		1-215-929-11	METAL OXIDE	100K	5%	3W F
R664		1-249-417-11	CARBON	1K	5%	1/4W
R665		1-215-877-11	METAL OXIDE	22K	5%	1W F
R667		1-215-927-00	METAL OXIDE	47K	5%	3W F
			< RELAY >			
RY601	⚠	1-755-245-11	RELAY, AC POWER			
			< SWITCH >			
S001		1-571-532-21	SWITCH, TACTIL			
S002		1-571-532-21	SWITCH, TACTIL			
S003		1-571-532-21	SWITCH, TACTIL			
S004		1-571-532-21	SWITCH, TACTIL			
S005		1-571-532-21	SWITCH, TACTIL			
S006		1-571-532-21	SWITCH, TACTIL			
S601	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)			
			< TRANSFORMER >			
T511	⚠	1-453-279-11	TRANSFORMER ASSY, FLYBACK (NX-1747/U2B)			
T531		1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE			
T601	⚠	1-433-411-11	TRANSFORMER, LINE FILTER			
T602		1-431-732-11	TRANSFORMER, CONVERTER (SRT)			
T603	⚠	1-433-424-11	TRANSFORMER, CONVERTER			
			< THERMISTOR >			
THP601	⚠	1-808-059-31	THERMISTOR, POSITIVE			
			< TUNER >			
TU101		8-598-331-02	TUNER, VSS BT-AC401			
			< CRYSTAL >			
X001		1-578-774-11	VIBRATOR, CRYSTAL			
X302		1-567-505-11	OSCILLATOR, CRYSTAL			
X303		1-567-504-11	OSCILLATOR, CRYSTAL			
**********						
		*A-1638-115-A	C BOARD, COMPLETE			
			**********			
			< CAPACITOR >			
C701		1-102-114-00	CERAMIC	470PF	10%	50V
C702		1-102-109-91	CERAMIC	180PF	10%	50V
C703		1-102-109-91	CERAMIC	180PF	10%	50V
C708		1-162-114-00	CERAMIC	0.0047MF		2KV
C710		1-136-189-00	FILM	0.1MF	10%	250V
C712		1-102-109-91	CERAMIC	180PF	10%	50V
C714		1-104-664-11	ELECT	47MF	20%	16V
C717		1-102-114-00	CERAMIC	470PF	10%	50V
C718		1-102-114-00	CERAMIC	470PF	10%	50V
C719		1-102-114-00	CERAMIC	470PF	10%	50V
			< CONNECTOR >			
CN702		1-695-915-11	TAB (CONTACT)			
CN703		*1-564-509-11	PLUG, CONNECTOR 6P			
CN705		1-695-915-11	TAB (CONTACT)			
CN706		1-695-915-11	TAB (CONTACT)			
CN707		*1-564-508-11	PLUG, CONNECTOR 5P			
			< DIODE >			
D701		8-719-109-89	DIODE RD5.6ESB2			
D702		8-719-991-33	DIODE 1SS133T-77			

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

C

REF. NO.	PART.NO	DESCRIPTION	REMARK
D703	8-719-991-33	DIODE 1SS133T-77	
D704	8-719-991-33	DIODE 1SS133T-77	
D705	8-719-991-33	DIODE 1SS133T-77	
D706	8-719-991-33	DIODE 1SS133T-77	
D707	8-719-991-33	DIODE 1SS133T-77	
D708	1-535-303-00	LEAD, JUMPER (5.0MM)	
D709	8-719-991-33	DIODE 1SS133T-77	
D710	8-719-991-33	DIODE 1SS133T-77	
D711	1-216-349-00	METAL OXIDE 1 5% 1W	F
D712	8-719-991-33	DIODE 1SS133T-77	
D713	1-535-303-00	LEAD, JUMPER (5.0MM)	
D714	8-719-991-33	DIODE 1SS133T-77	
D715	1-535-303-00	LEAD, JUMPER (5.0MM)	
D716	8-719-991-33	DIODE 1SS133T-77	
D718	8-719-991-33	DIODE 1SS133T-77	
D719	1-535-303-00	LEAD, JUMPER (5.0MM)	
		< CRT SOCKET >	
J701	⚠ 1-251-595-11	SOCKET, CRT	
		< COIL >	
L704	1-414-186-31	INDUCTOR 33UH	
		< TRANSISTOR >	
Q701	8-729-046-28	TRANSISTOR BF420-126	
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q703	8-729-046-28	TRANSISTOR BF420-126	
Q704	8-729-200-17	TRANSISTOR 2SA1091-O	
Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q706	8-729-046-28	TRANSISTOR BF420-126	
Q707	8-729-200-17	TRANSISTOR 2SA1091-O	
Q708	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q709	8-729-046-28	TRANSISTOR BF420-126	
Q710	8-729-200-17	TRANSISTOR 2SA1091-O	
Q712	8-729-046-28	TRANSISTOR BF420-126	
Q713	8-729-046-28	TRANSISTOR BF420-126	
		< RESISTOR >	
R701	1-247-895-91	CARBON 470K 5% 1/4W	
R702	1-215-899-11	METAL OXIDE 15K 5% 2W	F
R703	1-535-143-61	LEAD, JUMPER (5.0MM)	
R705	1-260-099-11	CARBON 1K 5% 1/2W	
R706	1-247-815-91	CARBON 220 5% 1/4W	
R707	1-249-411-11	CARBON 330 5% 1/4W	
R708	1-249-408-11	CARBON 180 5% 1/4W	
R711	1-249-427-11	CARBON 6.8K 5% 1/4W	
R712	1-260-099-11	CARBON 1K 5% 1/2W	
R713	1-249-439-11	CARBON 68K 5% 1/4W	
R714	1-215-899-11	METAL OXIDE 15K 5% 2W	F
R715	1-535-143-11	LEAD, JUMPER (10.0MM)	
R716	1-247-815-91	CARBON 220 5% 1/4W	
R717	1-249-411-11	CARBON 330 5% 1/4W	
R718	1-202-814-11	SOLID 33K 10% 1/2W	
R719	1-249-408-11	CARBON 180 5% 1/4W	
R720	1-249-427-11	CARBON 6.8K 5% 1/4W	
R721	1-535-143-61	LEAD, JUMPER (5.0MM)	
R722	1-202-848-00	SOLID 680K 10% 1/2W	
R723	1-535-143-11	LEAD, JUMPER (10.0MM)	
R726	1-260-099-11	CARBON 1K 5% 1/2W	
R727	1-247-815-91	CARBON 220 5% 1/4W	
R728	1-216-351-00	METAL OXIDE 1.5 5% 1W	F
R729	1-249-411-11	CARBON 330 5% 1/4W	
R730	1-249-408-11	CARBON 180 5% 1/4W	
R731	1-249-427-11	CARBON 6.8K 5% 1/4W	
R734	1-247-807-31	CARBON 100 5% 1/4W	
R736	1-215-899-11	METAL OXIDE 15K 5% 2W	F
R737	1-247-891-00	CARBON 330K 5% 1/4W	
R739	1-535-143-11	LEAD, JUMPER (10.0MM)	
R741	1-202-549-00	SOLID 100 20% 1/2W	
R743	1-535-143-61	LEAD, JUMPER (5.0MM)	
R746	1-249-417-11	CARBON 1K 5% 1/4W	
R750	1-249-417-11	CARBON 1K 5% 1/4W	
R751	1-249-417-11	CARBON 1K 5% 1/4W	
		< VARIABLE RESISTOR >	
RV702	1-241-656-21	RES, ADJ, METAL FILM 110M	

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

REF. NO.	PART.NO	DESCRIPTION	REMARK
		MISCELLANEOUS	
		**********	
⚠	1-416-329-11	COIL, DEMAGNETIC	
	1-452-032-00	MAGNET, DISC; 10MM Ø	
	1-452-094-00	MAGNET, ROTATABLE DISC; 15MM Ø	
⚠	1-453-279-11	TRANSFORMER ASSY, FLYBACK (NX-1747/U2B)	
	1-598-128-11	SPEAKER	
⚠	1-540-006-22	CAP ASSY, HIGH-VOLTAGE	
⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	
⚠	1-590-501-21	CORD POWER (WITH NOISE FILTER)	
	8-598-331-02	TUNER (VSS BT-AC401)	
⚠	8-451-295-45	DEFLECTION YOKE (Y21PFA2BA)	
⚠	8-738-784-05	PICTURE TUBE (SD-169) (A51JXH61X)	
⚠	7-738-784-72	ITC	

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REF. NO.	PART.NO	DESCRIPTION	REMARK
		ACCESSORIES AND PACKAGING MATERIAL	
		**********	
	4-204-422-11	MANUAL, INSTRUCTIONS (KV-21M5D/21T5D) (ENGLISH/GREEK/TURKISH)	
	4-204-422-91	MANUAL, INSTRUCTIONS (KV-21M5K/21T5K/21T5R) (ENGLISH/CZECH/POLISH/RUSSIAN/ HUNGARIAN/BULGARIAN)	
	4-039-905-02	BAG, PROTECTION	
	4-204-357-01	INDIVIDUAL CARTON	
	4-204-355-01	CUSHION (LOWER) (ASSY)	
	4-204-351-01	CUSHION (UPPER) (ASSY)	

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		REMOTE COMMANDER	
		**********	
	1-475-765-21	COMMANDER, STANDARD TYPE (RM-883)	

9-974-973-01

Sony Corporation
Sony UK
Service Promotions Dept.

English
98FP7118-1
Printed in U.K.
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